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IN THE SUPERIOR COURT,

State of California, County of Sacramento.

OCTOBER SESSION, 1881.

HON. JACKSON TEMPLE, - - - - - - - PRESIDING JUDGE.

WINFIELD J. DAVIS, OFFICIAL REPORTER.

SAMUEL OSBOURNE AND WILLIAM M. CUTTER, REPORTERS.

The People of the State of California,
vs.
The Gold Run Ditch and Mining Co.

COUNSEL:

For Plaintiff,

HON. A. L. HART, Attorney General, GEORGE CADWALADER, ISAAC S. BELCHER, A. L. RHODES, RICHARD BAYNE.

For Defendant,

J. K. BYRNE, W. C. BELCHER, S. M. WILSON, W. T. WALLACE, A. B. DIBBLE, A. P. CATLIN.

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In the Superior Court
of the State of California
in and for the County
of Sacramento.

The People of the State of California
vs.
The Gold Run Ditch and Mining Company

Afternoon Session
Friday
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Winfred J. Davis
Official Reporter

In the Superior Court of the State of California in and for the County of Sacramento.

The People of the State of California vs. The Gold Run Ditch and Mining Company } Afternoon Session Friday Jany 6/82

Testimony of J. W. Marshall direct resumed

Mr. Byrne At the time of our adjournment you were speaking of the flood of 1845/6. Will you describe the extent of that flood in this valley?

A It covered the valley as far as I could see. It was all covered over here. It came up within

9076

about 2 feet of sand on the floor at Sutters Fort

2 Do you know how high Sutter Fort is above the Sacramento River?

A. I do not.

2. Was there any other flood within your knowledge later than that of 1840/6 in that valley?

A Not that I witnessed at the highest time

2 Were you here in 1849/50.

A I was here just before the high raise, and went up into the mountains to Coloma. At the time the high raise came, I was up there

2 Then I understand you you did not see that flood?

A I saw it at Coloma but not here.

2 Did you see it in the Sacramento Valley?

A I do not I say

2 Now with reference to floods at Coloma. What

has you observation been in regard to high water marks.? A The highest water mark we had there was in the winter of 1861/2. It overflowed what we used to call the lower part of the town - Chinatown, it lodged some logs up there on the highest bar, that were 3 feet in diameter, and yet I saw symptoms when I first went there of drift wood being some 2 or 3 feet higher.

Q I wish you would describe particularly to The Court the evidences of a higher flood that you saw at Colomar and where you saw it?

A I saw it by the lodging of wood on the bank, drift wood, and by the lodging in the brush or timber - what we call brush and timber, small oak, scrub oak - where

the flood had lodged it.

2. How much higher than the flood of 1861/2 were the evidences of an overflow?

A I should say from 2 to 3 feet; about 2½ feet.

2 At the point you speak of, how wide is the valley of the river say from bank to bank? A I never measured it exactly but would pronounce it about 600 yards, overflowing the bottom.

2 At what point do you now speak of?

A I am speaking of below the bridge below the Colma Bridge.

2 How numerous were these evidences of a higher flood than that of 1861/2? How often did you see them and how often were they observable?

A I should suppose on that flat there were a hundred evidences and in

other places hundreds more
2 Will you state what
other places?
A Farther up the river and
down the river following
on the bank. There was
one big log lodged up above
Chili Dan Bridge, and what
they call Table Rock, at
least 4 feet in diameter.
2 Did you say logs 4 feet
in diameter?
A Four feet in diameter
2 How high above the
ordinary bed of the river
at that point?
A I should think it was
25 feet that Table Rock
is. I suppose it to be that;
I did not measure it
2 Where is Chili Dan with
reference to the town of
Placerville? A It is
nearly due north.
2 And how far from
Placerville? A It is
about 3 1/2 miles.
2 Upon what river is it

A Upon the South Fork of the American

2 I requested you to describe to The Court any other evidences of high water that you perceived, that is any other evidences of high floods that occurred prior to the time you came here in 1845

A. All the evidences that I named see, was the wash The water leaves the banks at different places and when it returns into the river the current increases in rapidity moving away dirt and Earth

2. How high above the ordinary bed of the Stream would these marks be?

A In some places more and some places less. Where they had room to spread over it may be 2 or 3 feet, in others 5 or 6 where the Stream was narrow.

2 Prior to 1849 when I understand you mining commenced practically, what

was the character of the waters in these rivers during the time of flood or high water, as to being muddy or clear? A They carried down some small quantity of dark colored matter in them. You could not see more than 18 inches or 2 feet depth of water. It carried some sand with it coming down from up above and decomposed vegetation off the flats and so on.

Q Did you say it carried lots of sand?

A Sand carried some sand.

Mr Hart. When did he say that was

Mr Byrne Prior to the time when mining commenced. That was what you said, was it not? A Yes.

Q How was that with reference to the South Fork of the American as it passed Chili Bar?

9082 A Chili Bar it was not at.

Chili Bar was some miles above where I was. I owned only answer as to Coloma

Q How at Coloma?

A I should think the waters now or of late years when the river is high, owned carry down may be 20 times the quantity that it did before — before 1849.

Mr Hart At this time, did you say?

A Yes. I say the highest water we have now since mining began

Mr Byrne When you first saw the American River state whether or not, there were any bars, sand bars, in it.

A. There were some down this way

Q. Describe them?

A Some small ones at different places along on the river. There was one over here just below what they used to call the Halter Shop.

2 When did you first observe that?

A When I first came here

2. That I understand you say was in 1854 wh?

A Yes.

2. Are there any others you think of?

A There were several along the Sacramento River. There were several down here at the mouth of the American River

2 Some what?

A Sand Bars. Some layer some smaller.

2 How extensive were they?

A Some covered a quarter of a mile, and some not more than 200 yards in length. Some of them perhaps half a mile; I think there was one about half a mile

2 Where was that?

A That was near the outlet; it was right close where the slough was

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where the American River used to throw part of its water when it was high — into that Slough — Sycamore Slough we called it. That formed a part of the outlet at that time

2 Why did you call it Sycamore Slough?

A Because there were a great many Sycamores along there, and that was the common name given to it, among others, by the people at that time.

2 You say you were not here in Sacramento City during the flood of 1849/50?

A. I was not here during the highest flood of 1849/50 I was here a little prior and then directly afterwards. I went up to Colma at that time. I was interested in the Mill, one of the owners.

2 You were here directly after the flood? A Yes

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Q. But not during its continuance?
A. No.
Q. Were you here at the time of any subsequent floods to that of 1849/50 and if so when?
A. I was not here.
Q. Then I understand you that you do not know anything about any subsequent floods to those you have already spoken of?
A. No further.
Q. But that of 1850/6 particularly?
A. I say as to the Valley here I know of none of them after 1850/6, any more than the indications that were left.
Q. That is the last flood in this valley which you actually witnessed?
A. Yes. I will correct that. You asked me if that was all the floods I saw. If you call this one which happened here 3 or 4 years ago, a flood, I was

here when it broke over on the other bank. I was here then. But then the American River did not rise of any consequence

Q What year was that?

A I guess some 4 or 5 years ago. I can not recollect the exact year. You may know it here.

Q That must have been the flood of 1877/87.

A I guess it was.

Cross Examination
of
J. W. Marshall

Mr Hart Q What were you doing at the time of your discovery of gold at Coloma?

A I was building a mill or superintending the building of a mill for Sutter & Marshall.

Q That is yourself and Sutter? A Yes.

Q Had the mill been constructed at that time fully? A It was not fully constructed. It was partially

Q And was not in operation?

A No. The lower story was up and we were framing the upper story

Q At that time did Sutter have a farm in this Valley? A Yes sir

Q What was the name of it? A I suppose he had the best part of a

section in cultivation

Q Where was that located?

A Located up here, right between the American river, or principally between the American river and the fort.

Q He owned that did he?

A As far as I know

Q Will he have a farm known as the Stock farm at that time? A Yes

Q Where was that located?

A Located on the North bank of Feather River about 4 or 5 miles below the mouth of the Yuba River

Q About 4 or 5 miles below Yuba City?

A Yes.

Q At that time what was Sutter doing with his Stock Farm?

A Principally raising cattle and horses

Q What else?

A A little grain not

a great deal

Q What year was that do you say? A 1845-46 and 1847

Q What was he doing with his farm down here near Sacramento?

A He had some cattle and some horses and he was raising grain — wheat

Q Do you know how many acres he had in cultivation at that time?

A I said something like a section. I never measured it.

Q How many stock did he have, horses and cattle? A Oh I suppose he had about 1000 head of cattle and maybe one hundred head of horses; on both farms he had about double

Q They roamed at large mostly on the public domain did they not?

A St generally had a herdsman who use in awhile would go and drive them up

Q They were running on the public land?

A yes sir

Q were there many cattle here at that time?

A St Clair and Grimes over on the opposite side of the river on what was called Grimes ranch I think had about 200 head

Q what was Grimes' first name? A Abram

Q who was the other one? A John St Clair

Q They had what is now known as the Norris grant did they not?

A yes

Q And the San Juan grant? A I do not know the name any more than that a man by the name of Norris bought it

of them

Q Do you know anything about the San Juan grant?

A Not by that name

Q What were they doing with their lands there in reference to raising cattle?

A They were driving them over the plain and herding them the same as others

Q What else did they do with their land?

A I suppose Pt Reyes probably had about 80 acres put into grain into wheat

Q That you say was in 1845? A '45-6 & 7

Q Was there any other settler that you know of? A Yes.

Q Who was it?

A A man by the name of Leidersdorff had a ranch the upper end of which I suppose is

now called Folsom. It is said to be there. I do not know the boundaries exactly. He had a man by the name of Joseph Boswell who attended to it

Q Was he cultivating his land? A Very little

Q How much?

A I do not think he cultivated over 20 acres

Q How much land was he occupying there?

A I think five leagues all told

Q Did he have a farm house on it? A Yes.

Q Did you know of any other settlers on the lands here?

A That is on the American river you mean?

Q Yes A Wyman and Perry McCoon were living on this side, above

Q Had farms there?

A They had some cattle

Q And farm houses?
A They had a house there but I do not think they had any land they were on Sutter's land
Q They were residing on Sutter's land?
A Yes
Q Were they cultivating any of it? A I do not know. I do not think they cultivated any. I do not remember of their cultivating any
Mr Byrne I lbe interpose an objection to this examination if it is intended to continue it in this particular direction upon the ground that it is not in cross examination
The Court I will allow it
Mr Hart Q Do you know of anybody else besides those two? A Yes, Allen Montgomery and wife. But they did not

cultivate any

Q Where did they reside?

A They resided pretty near opposite the crossing of St Clair, the ford. St Clair's ranch was at the ford where they generally crossed, a gravelly ford

Q How far up the river was that? A It ought to be four or five miles from here. It was about two or two and a half miles from the fort

Q Did they have any stock running at large there? A They had no stock; he was a gunsmith and worked for Sutter

Q Did you know of any other settlers? A On the Cosumnes I did. There was Shelton and Day or Daylor. They cultivated about 40 acres and had abou

1500 head of cattle

Q How much land did they have there?

A They applied I believe, for four leagues

Q For how much?

A Four leagues they applied for; whether they got to own it or not I do not know

Q They were living on a Spanish grant there?

A They were living up next to the mountains where the Cosumnes rive, comes out I suppose somewhere near what they call Michigan Bar

Q Do you know the name of the ranch they were living on?

A I do not. They afterwards sold half of it to Perry McKoon and Wyman and they moved down on the Cosumnes

Q Did you know any farm houses on Poota

and Cash Creeks at that time? A There was one on Cash Creek. I think a man by the name of George Jordon lived there There was another at Poota; I think his name was Wolfskille

Q What creek was that on? A Poota we called it

Q How much land did they have? A I could not tell you. Jordon I suppose – I had seen his ranch – had about 40 acres in cultivation in corn when I came here

Q That was where?

A On Cash Creek. I went down to Yount's, to Napa and I saw no cultivation at Wolfskille's He might have had it somewhere back in the mountains but I did not see it

Q Did you go up in the neighborhood of the Stock farm?

A Often.

Q Did you see any lands in cultivation up there besides that cultivated by General Sutter?

A No Cordua on the Yuba had about as much as they had at Stock farm: about 40 acres

Q About 40 acres in cultivation there?

A Yes, where Marysville now stands

Q How long was this before the discovery of gold? A Well gold was discovered in January 1848 – the 19th – and I was there in 1845-46 and 1847

Q Were there any other settlers coming into California between 1845 and 1847? A Yes several

Q Do you know about how many? A Dunlap not very well say

Q Immigration was not very rapid at that time?

A No not very rapid

Q Before the discovery of gold there were not many settlers in California as compared with the number that were here when you came were there not?

A They increased considerably. The Bear Flag war broke out. I was one of those that went down below and was down there during the Winter of 1846-7

Q Where was that?

A Los Angeles and Santiago

Q Were there any settlers down there at that time?

A There were some American settlers besides the Spanish

Q There were a great many Spanish settlers were there not?

A I suppose there were three or four American settlers down in the valley where there was one up here. Most of the American settlers settled down about San Jose and near Napa

Q What was about the Spanish population at Los Angeles at that time? A I cannot tell as to the County as I was in the City all the time

Q There was a large City there was there not? A No

Q How large was the City? A I should think 1000 inhabitants would cover all.

Q And the plains were dotted by houses of stock raisers?

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A Not a great deal. There were some vineyards there.

Q Any grain fields?

A A few

Q Mostly devoted to stock raising was it not?

A Mostly devoted to stock raising

Q When was it that this Valley commenced being largely used for purposes of stock raising?

A Well that is hard to tell

Q Well state your recollection A I do not think it was ever used for stock raising

Q The Sacramento Valley?

A I do not think the Sacramento Valley was ever heavily used for stock raising

Q Don't you not know there were hundreds of thousands of cattle in Sutter County alone

in 1853, 1854, 1855, and 1856 along there?

A I was not aware of it

Q Do you not know that Cox and Clarke had large farms there devoted to stock raising?

A Neil Dillon in Sutter County, as far as I know of Sutter County had, I suppose about 1000 head and I had about 30 or 40 I suppose Bidwell, I do not think had any. Peter L. Lassen and Peter Lassen and his partner had about 2000 head. That is all I know in that Valley.

Q Do you know of a place in Marysville known as the Spanish ranch? A No.

Q About 18 miles from Sacramento? A I do not know it

Q Do you know whether

there was any farm there at that time?

A I do not know of such a place as that

Q You do not know whether there were any farms up there at that time do you?

A There was Nicholas who lived on Feather River at the mouth of the Bear

Q What year? A He lived there when I came

Q That was in 1845?

A Yes

Mr Cadwalader. This Spanish ranch is a few miles this side of Nicolaus?

A I do not know of any ranch there. There was no ranch there at that time

Mr Hart Q When did Nicholas Algier settle on the Feather?

A I do not know. He

was settled there when I came

Q Was he farming?

A No.

Q What was he doing there? A He had a kind of dairy and made cheese. He had a few cows and cattle and made cheese and butter

Q To whom was he supplying his cheese?

A To the travellers

Q To the travellers?

A Yes. Men who went up and down the Valley. I bought some of him, among others

Q How many cattle did he have there?

A I do not think he had over 30 or 40

Q Do you know that Nicolaus Algier during the earlier days of this State became a very large stock owner?

A He may have afterwards

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but he was not there

Q And owning thousands of horses and cattle?

A He ought to have had some horses because I left some with him which I never could find again

Mr Cadwalader Q That was always the case was it not?

Mr Hart Q Now in speaking of the population of this locality in 1845 and from that on up to 1850; you have included only the Americans, the native born Americans who came here or foreigners You did not include the Spanish population did you?

A I did not include much of the Spanish population when I said 1845. I paid there were about 50 inhabitants

Q There were a great

many Spaniards here were there not? A Not in this Valley. Very few

Q About how many Spaniards were there then?

A I do not suppose more than five or six

Q What were their occupations? A Herders, herding for other people

Q Herding cattle and horses? A Yes Some of them were working for Sutter and some for others

Q Was there any settlement at Vallejo and Benicia at that time?

A I went down the river but I did not notice any thing more than at one of those points where they land there was a house on that side and two or three on the other side

Q How did you happen to discover gold? Were you looking for it or was

it an accident?

A Ihad taken the idea that there was gold in the mountains and I was looking for it

Q You were looking for it at the time?

A Looking for whatever turned up in a mineral light

Q What was it brought you here to California?

Q You came partly for your health? A Yes

Q After you got into the Country you worked in that mill and discovered gold?

A I worked for Sutter some time before I went up there. After I returned from the California Battalion. I formed the resolution of going up into the mountains to build a mill. I went up and found a location

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and looked around for a partner. Sutter agreed to become my partner. I was to be the active working partner

Q What was the population of Sacramento at that time?

A It was hard to tell, if you include all that were in it. In the mean time the Stevenson Regiment had come on and part of them been discharged. The Mormon Battalion had likewise been discharged pretty much. A good many of them came here and were working for Sutter.

Q On his lands?

A On the head race of the Brigham Mills. Sutter undertook to build a flouring mill. The one I built up in the mountains was a saw mill

Q This flouring mill

was constructed before they began raising grains largely in the State was it? A They had not raised a great deal But people came in and began to settle during the time we were down with the Battalion. There came in one immigration in the fall of 1845. The next year we were down there and Fremont came up to meet the immigrants to recruit his forces and left me and some more down there to hold the garrison of Los Angeles

Q When was this flouring mill first commenced?

A It was commenced after I returned from Los Angeles in the Fall of 1847

Q That was about the first step towards utilizing the lands in California

was it not? A well I have described what they were

Q Nothing else had been done up to that time towards grinding up the wheat or preparing for making flour?

A Dayton was building another small mill over on the Cosumnes at the same time

Q were there at that time any orchards and vineyards here? A not that I know of

Q None in this valley?

A no. The only ones I know of were at the Missions

Q They were in Southern California were they not?

A there were no missions this side of San Jose that I know of

Q Do you know at that time what was the condition of Monterey County

for population
A I do not understand the question
Q Do you know what at that time was the condition of Monterey County? A I do not
Q Or the industry of its inhabitants?
A I do not. I only passed through it
The Court That is rather a wide range in the cross examination
Mr Hart Now you say there was a general reputation of a flood in 1830? Eyes
Q From whom did you hear that talk?
A I heard the reputation first in Oregon from this man whom I spoke about, Captain Hermanntagen and some men who accompanied him in that expedition. Then I heard it here from the

Indians and some old men who had been here, some of them Canadian hunters and trappers

Q They had been here in 1830? A They said so I did not see them

Q Was it the general talk? A The general talk was, they said they had better keep on the high land, on the back land, and keep out of this, or sometime or other there would come a flood and sweep everything before it

Q Do you know whether it was also at that time a matter of general reputation that this Valley had been entirely covered to the mountain tops at some time? A I did not hear the question.

Q Do you know whether it was also a matter of

general reputation that this Valley had at some time been entirely covered with water deep enough to reach near the mountain tops? Where was no such talk and no one at that time had such an idea that I know of

Q You speak of evidences of former floods. Did you know anything at that time or do you now of a petrified whale on the top of Mt. Hamilton?

Mr Dibble We object to that as an impertinent question, and not in cross examination

The Court The whale would be rather an evidence of submergence of the Continent than of a rise of water

Mr Hart Q How much of the tops of the Butte Mountains did they lay

was out at the time of this flood of 1850?

A They did not give any particular height they said it was surrounded with water

Q The Butte mountains, or the ground upon which the Butte Mountains stand, is how much higher than the land of Sacramento?

A Never have measured it.

Q Running the water up to the tops of the Butte mountains would make a sheet all over this Valley that would almost cover the top of the State Capital would it not? Or do you know? A I am not a judge. We have tide water outlet and a pretty big one too

Q This drift that you saw in the trees of 1845 you say you were told

came from the flood of 1830? A I did not say it did come from that

Q What was the reputation was it? A I said there were symptoms of a flood and I supposed it to have been about 1830

Q That would have been there 15 years then?

A yes.

Q Do you think it is possible that drift wood would remain in a tree 15 years?

A as long as there was nothing else to remove it

Q What kind of wood was that? A common drift wood that comes out of the mountains

Q What was it composed of? A some of it pine some ash, some fir and oak

9110 Q How long would it

take that kind of wood to decay? A If it was a pine knot it would take it some considerable time

Q But an ordinary pine or oak stick?

A Some of them were pine knots

Q And some was oak?

A Some was oak

Q How large were the oak sticks that you saw? A From the size of your finger up to I suppose 2 or 3 feet.

Q Would you think a stick the size of your finger would remain in a tree 15 years?

A I think those as large as your body would

Q But there was some of the drift as large as your finger you say Do you think that would stay in a tree as long as fifteen years?

A I think it would under certain circumstances; providing there was no fire broke out under it

Q And no wind?

A It would last that length of time, live oak would, if it was a hard piece

Q What was the condition of this tule rolled up and decayed?

A It was decayed, almost rotten

Q Was it mixed with dirt? A It was mixed with sand. I could trace the banks easily

Q Could you take distinct pieces of tule out of it? A What?

Q Could you find pieces of tule that would hold together? A I found short length and straight lengths but it was considerably rotten

9117 Q Will tule last fifteen

years after it is wet and mixed with dirt?

A I have never tried an experiment, any more than that. That is all I know

Q You say the flood of 1845 and 1846 covered the Valley as far as you could see; how far could you see?

A I saw from the Fort down and from the Fort up North

Q Is not the Fort in this City? A I do not know whether it is in the limits of the City We used to consider it 2½ miles from the river

Q How much higher was that fort at that time than the natural banks of the river on a direct line between it and the river? A I cannot tell

Q It was not more than a foot or two higher

was it?

A I should think it was some 3 or 4 feet maybe 4 or 5. There was a current running, and as a matter of course it would be lower at one place than at another

Q At that time what kind of a stream was the American river? What kind of water did it carry in the Summer time? A Clear water

Q Very clear?

A An ordinary stream

Q A pebbly bottom?

A A pebbly bottom up there and down below a sandy bottom

Q Steep or bluff banks generally?

A On one side, and the other flat. Where the stutter Shop was it was bluff bank

Q Did it have a well defined channel?

A Of course

Q Trees on either side?

A There were trees on the Northern side, low trees such as we call cotton woods

Q Were there any oaks?

A Not close to the river until we went above. There were oaks after we went above the ferry but not below the ferry

Q How deep was the water near the river bank opposite the fort at that time? A At what we call the Stables shop it was some 4 or 5 feet

Q Where was that?

A At what I call the Stables Shop which was right North of the fort

Q That was between the Fort and the American river? A It was right on the bank of the river, the Stables shop was

O Doyon know how far that was from Smith's gardens afterwards established? A I do not.

O you say the highest water you have ever seen at Coloma was in 1862? A 1861-2 in the Winter.

O Stow much higher was that than the flood 1867-8?

A I do not remember 1867-8. I was not there.

O were you not at Coloma in 1867-8? A no.

O where were you at that time?

A I was up in the mountains

O Did you see any of the rivers during that time? A I only saw the small branches

O was there a great deal of water flowing through them?

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A There was considerable water flowing down

Q Now much higher was the flood of 1861 — I mean the flood of 1875?

A Again I did not take any measure

Q Now?

A Again. I did not take the measure

Q But you can give me a general estimate. Was it a great deal higher or only a little higher

A Do you say 1875 or 1865?

Q 1875 ?
A I should think there was nearly double the quantity of water
Q Nearly double the quantity of water running in Colorado that there was in 1875 ?
A yes.
Q How much higher was it in 1861 and 62 than in 78 ?
A I was not at Colorado
Q How much higher in 1862 than it was in 1880 ?
A I was living at Kelsey then
Q Didn't you see the River
A I did not see the River
No Not at a high time
Q Did you see the River in 1880 and 81
A No sir
Q You did not see it in 1881
A Not at its high time
Q Do you know from anything that you saw there

the Comparative amounts
of water in those mountains
in 1861 and 62 and in 1881
A Well thar is a curious
Question and One that I
would not hardly Know how
to answer or Understand
I Cannot estimate the quan-
tity of water that falls from
the heavens from a Rain Cloud
Q Thar is not what I asked
you (Question repeated)
A Well I should think there
was over double in 1861-62
Q When was it that the
logs that you spoke about
lodged on the table rock
25 feet above the River?
A That was before I came here
the log was laying there.
Q Did you Know that those
logs Came from the water
A They Could not get there
any other ways
Q They Could not get there
A no sir not otherwise
Q you assume that they
went there by water because

You do not know of any others means by which they could have got there?
A That is an indirect question.
Q Well is that not a fact?
A Well I say it is an indirect question. Supposing I answer it indirectly.
Q Well I dont Care anything about an indirect answer I am trying to treat you very respectfully
A The Rock Stands Isolated by itself.
Q Well I ask you
A Here is the River and there was no blocks or tackles Or anything else Known and the Indians could not very well hoist it up there. Nothing else but water could put it there.
Q That is the Reason you say it Came by water because it could not get there any other way?
A Yes.

9125

Q What was the nature of this wash on the banks that you saw indicating high water?
A In the nature of a current running against it and washing it away.
Q What was the nature of the bank rock or sand or dirt?
A A mixture.
Q A mixture of all?
A Yes sir.
Q Was the rock of the character or the material of the character that ordinarily forms the bank of the American River up through the mountains generally, the bed rock?
A It was that kind, very of it carrying any cement rock
Q Cement rock?
A I say none of any consequence generally loose rock some little here and there a spot of hard rock.

Q Now then what was the appearance which you said indicated high water?
A The removing of dirt and the lodging of drift
Q The removing of dirt and what?
A The lodging of drift
Q Was there any indication at that point 25 feet higher than you have ever seen — was there any indication there of whether this removal of the dirt was made by water or something else, leaving off, could you see it — did the water leave its mark so that you could say with reasonable certainty it was water that made that mark?
A Well you have got the question mixed, you speak about 25 feet.
Q Was not this 25 feet higher than you have ever seen it?
Mr Belcher he said 5 feet

A I did not say 25 feet higher than I ever saw it
Mr Hoss What did you say
A I said about 2½ or 3 feet
Q 2½ or 3 feet higher?
A Yes sir
Q Did you say that those logs were 25 feet higher than you had ever seen the water?
A I said higher than the water was at the time I looked at it, nor at the time that the water had ever got to be.
Q You thought it was 2½ or 3 feet higher. Now could you see there anything which indicated that that removal of dirt had been made by water?
A Opposite to where that log must have floated I could see it on the banks.
Q So you are pretty certain that there were 2½ feet more water coming down from the mountains than

has ever come since you were there
A Since I have been in the Country
Q Have you seen any very large floods in the mountains since 1862?
A I saw that one in 1861 and 62.
Q That is the only very large flood that you have ever seen there?
A It is the largest I saw some what I call pretty good, pretty large.
Q But that is very much the largest you said twice as large, when was it that you saw the dark colored mud and sand in the water?
A I saw it in the winter of 1845 and six
Q That was the natural washings of the streams?
A Yes sir and then I saw it in the winter of 1847 and 48.

Q Natural washings
A In 1846 and 47 I was down to Losangelos.
Q You say the mud then was of a dark Color?
A I did not say mud I say water was, the sediment in the water was of a darkish Color?
Q And you think that the water now since Mining has Commenced Carries 20 times as much sediment as it did before mining Ammenced?
A I do.
Q At What points do you think it Carries more?
A I will say down here at Sacramento
Q Have you ever made any observations beyond the limits of the Mountains
A In what respect
Q With a view of determining that?
A In what respect
Q Have you seen the water

A I have observed the water and given my Ammon Judgement on it

O Your Judgement is there is 20 times as much sediment brought down here now as there was before there was any mining?

A That is I am speaking of at low water.

O After the flood of 1850 you say you were here what did you notice if anything indicating a flood

A I noticed some drift up upon what we Call Poverty Point here.

O anything else?

A And I saw where some houses or tents, more properly Called were scattered around and people scattered around looking for some Shelter

O anything else to indicate it?

A Nothing more than the goods and one thing and

another ~~swept~~ around and perple in a bad situation.
Q The drift that you noticed at that time was composed of small sticks and limbs and wood and things of that kind?
A And logs - put on some logs if you please
Q You did not at that time notice any deposit made on the lands in Sacramento City of any red sediment or anything of that kind?
A No sir, no red sediment
Q Or sand either
A Anything of the kind - Yes sir there was some sand down here at what we call the Cemetary, the burrying ground, I saw what I thought was a second addition to what had been there before, I saw some before. And I thought I saw some add-

itional Sand and logs
Q Generally the face of the earth was as you had seen it before about Sacramento excepting a few points?
A Generally there was a similar sediment left on the grass, just a thin sediment
Q Have you ever seen the remains of a flood since mining Commenced in Sacramento or elsewhere?
A The remains of a flood.
Q The remnants of a flood the results of a flood?
A I have seen it as I have passed up and down the River on the Steamer
Q You usually saw a yellow sediment about a foot deep didn't you?
A no not that deep.
Q How deep have you seen it?
A I do not think I saw it more than an inch Or two at any one rise

Q Where was that?
A On the opposite bank over here just below
Q When?
A. Well I cannot precisely point the year, I have been down to Sacramento 5 or 6 times on board the steamer and noticed it.
Q Well how many years ago was it the last time that you came down
A 4 or 5 years ago.
Q Well the results that you then saw of the flood was vastly different from the results that you had previously seen?
A No sir not vastly but somewhat different but not so vastly.
Q Well there was an inch difference according to your theory - that is all

Redirect Examination
of
J. W. Marshall

Mr Byrnie You stated in answer to a question that you had been to Hock farm, where is Hock farm?

A On the north bank of Feather River.

Q On the north bank of Feather?

A Yes sir above the mouth of Bear and about 4 or 5 miles above the mouth of the bear.

Q That was owned by Sutter?

A Yes sir

Q Did you ever go there in a boat?

A Yes sir

Q From Sutters Fort?

A From here up

Q

mention Marshall's signature

ough

Q When?
A I went up in 1849 & 1850
Q In 1849 and 50 you went from Sutters Fort to Hock farm in a boat I understand you?
A Yes sir and came down again.
Q Right across the Country?
A No!
Q In a direct line?
A No sir I came down the River and then I left and went up before the high rise. I waded the flat at Bear River that deep (four feet say) and got across with my horses and left them Nichols
Q You went to Hock farm from Sutters Fort
A Yes sir and came down from there
Q And came back again in a boat?
A Yes sir

Testimony of

E. A. Smith

Called for defendant — Sworn

Mr Catlin Where do you reside now

A My Home has been in Placerville recently

Q What is your profession

A Civil Engineer.

Q How long have you been engaged in that profession

A 5 & and On Since 1857

Q How long have you resided in California

A Nine years

Q How long have you resided in Eldorado County

A Seven years

Q What has been your employment and occupation in Eldorado County during your residence there

A I have been engaged in the Surveying and the Construction of Ditches, Canals

and so forth and surveying
mines principally.
Q State whether that employ-
ment has been Constant or
Casual ?
A It has embraced a greater
portion of the time since I
have been up there
Q State to what extent
you are personally acqua-
inted with the Geography
and topography of Eldorado
County
A I have been over the great-
er portion of Eldorado County
and a Considerable portion
of that a great many times
Q State how you have been
engaged - I understand you
in the Construction of Canals
A Yes Sir
Q Surveying Canals and
also in the Construction
A Yes Sir
Q Have you made any
maps of your County Or
any portion of it
A I made a Map of the Entire

County last year
Q From what did you make that?
A Partly from official data and partly from my own knowledge
Q Can you state the drainage area of the American River in Eldorado County
A Approximately it is about 1000 Square miles a
Q About 1000 Square miles
A Yes sir and 777 square miles of that area is in the drainage of the South Fork.
Q And the balance?
A The balance of the drainage of the Middle Fork and the North Fork from the mouth of the Middle Fork down to the Junction of the South Fork, a very small proportion.
Q About one fourth of the drainage then runs into the Middle Fork and the remainder into the South Fork?
A Yes sir.

9139

2- State what proportion of that drainage area is or has been hydraulic mining or drift mining or gravel mining?
Mr. Cadwalader I object to that as being to general.
Mr. Catlin I asked him first whether his acquaintance is such that he can state and he says he has been engaged in surveying mines
Mr. Cadwalader Let him state at what places hydraulic mining has been carried on.
The question is repeated.
The Court If he knows.
A- I think fully one half.
Mr. Cadwalader One moment.
Mr. Catlin One half of the drainage area that you have spoken of?
A- I will state it more explicitly
2- Devoted to hydraulic mining, and drift and gravel mining?
A- I would say that fully one half of that entire area is or has been placer, hydraulic or drift gravel mining.

9140

Q- Now describe exactly what you mean by hydraulic mining? and drift and gravel and placer mining?

The Court I suppose you do not propose to give any new definition of that which has been defined so often. There is no use spending any more time on it than is necessary- unless you propose some further definition I suppose it may be understood the definition which has been given will be sufficient.

Mr Gaffin Have you made observations in regard to the rainfall in that county during your residence there?

A- I have.

Q- Can you state what the average rainfall is in that county, the annual average rainfall in inches

Mr. Gadwallader Give us the rainfall for the years.

Mr Gaffin Answer my question first and then Mr. Gadwallader will have an

opportunity to cross examine you bye and bye.

A- In my judgement the average rainfall since I have been there in El Dorado County has been about 40 inches taking the entire County.

Q- That is the average of the county? A- Through the county

Q- If you can give it in years in Placerville give it so?

A- The first year in which the rainfall was noted in Placerville was the season of 1875 and '76. The rainfall that year was 53.86

1876 and 7 24.62

'77 and '8 37.28

'78 and '9 38.71

'79 and '80 52.60

80 and '81 48.04

Q- Can you give the rainfall during the same years at Georgetown? A- I can partially. The rainfall at Georgetown the record ante-dates that of Placerville. It goes back to 1872-3.

9142

Q- Just give it:

A- 1872 4682
'73 and 4 6364
'74 - 5 4744
'75 - '6 8057
'76 - '7 4125
'77 - '8 6131.

For the succeeding seasons I have not got it.

Q- State what would be the amount of precipitation of this rainfall in the whole of that drainage area say in cubic feet or yards?

Mr. Cadwalader We object to it unless the witness is shown to understand the subject.

Mr. Belcher He states that he is a civil-engineer to start with.

Mr. Cadwalader That means simply a land-surveyor.

Mr. Cadwalader I will ask you whether you have made observations of the meteorology of the country at that point and paid some attention to

the subject or not - state whether you have given attention to the subject of which we are speaking?
A- The rainfall I have.
Q- Now then I will ask you can you state the total annual precipitation over this area in cubic yards
A- The average annual precipitation of this area
Mr. Cadwalader Is that all you want to get at the average - we can do it ourselves. It is forty at Placerville and so much at Georgetown.
A- It would be from 90 thousand to 100 thousand million cubic feet.
Mr. Cadwalader I object to that and move to strike it out.
The Court It will not do any harm I suppose - that is assuming 40 inches as the average
9144 Mr. Catlin - I will ask you whether

your personal acquaintance with the drainage area will enable you to state approximately, what proportion of it stands upon an inclination of 30 degrees to the horizon Just assume first about your means of observation
A- I do not know whether I can assume that – well I think I could approximately
Q- Will then state what proportion of that drainage area lies on an inclination of 30 degrees?
A- Will about 20 per cent from 30 degrees and upwards.
Q- About 30 percent of it lies upon an inclination of 30 degrees?
A- About 20 per cent.
Q- I will ask you whether you have ever observed the action of the rain storms upon the mountain sides? A- I have.

2- Now state what effect those storms have on the surface of the earth on the sides of the mountains?
A- Well the long dry Summers of course the soil is very much loosened up, the grazing of cattle, sheep and all that sort of thing that goes upon the mountains during the Summer and the first heavy rain storms usually brings down a very large amount of sediment.
2- What kind of sediment heavy or light!
A- Light surface material
2- Well what other effects have you observed?
Mr. Bradwaladen I object to that as leading.
A- The construction of roads, ditches, trails & etc have contributed in a great degree to break the continuity of the strata along the mountain sides

and the consequence is that heavy rain storms are usually followed by slides as they are called there of very much greater extent probably than were known before the construction of these roads and trails.

Q- Describe some of these grades you speak of - you mean graded roads?

A- I mean the roads leading to the mountains.

Q- Describe those roads and the effect of the storms upon them since you have observed?

Mr. Ledwidge You mean roads constructed within 20 years?

A- The main road leading east from Placerville is the Carson road then was a road preceding that which went over the road originally to Ogleby Canon and then to Ogleby

Bridge where the two came together. There was a second road from the Oglebee Canon down to the Oglebee Bridge lower than the first one and an easier grade. On the other side of the river was the old county road and one or two grades some of them not completed and some were. Along the line of all those roads including the ground occupied by the El Dorado Water and Deep Gravel Mining Companies Main Trunk Canal there has been an immense amount of work since I have known that country. Along the sides of the ditch slides are very numerous, along those roads and beneath the ditches especially, the two Oglebee grades are absolutely destroyed, a man called hardly

get along on foot on any of them for a distance of five miles. A part of the damage has been done by breaks perhaps in the ditch. The remainder has been done by slides both above and below the ditch.

2- Where does the material go to effected by these slides? A- It goes into the mine. During the year 1876, in the Spring of 1876 we had slides all along the sides of the ditch.

2- For how many miles in extent?

A- For twenty miles. They came in and filled up the ditch bed and in several instances those slides broke back sometimes two or ~~four~~ three hundred feet even where the ground was comparatively flat, and after filling up the ditch and having

been cleaned out they still continued to come, and continued to come for 2 or 3 years afterwards, and some of them are still coming
Q. That is these slides you speak of? A. Slides.
Q. How extensive would those slides be - how large an area speaking of these particular ones that you are now speaking of?
A. Well there is one slide near the head of the ditch which probably covered two or three acres. It came in gradually and continued to slide down as it was cleaned out of the ditch, others were of smaller extent. There was one at a place we call Big Gulch that was some forty or 50 feet high and ran back probably a couple of hundred feet and I think is still coming
9150 As it fills the ditch it is

cleaned out and keeps on coming.

Q- State whether you ever have observed, if you know anything about any large avalanches or land slides?

A- Yes Sir.

Q- Any evidences of them that you have observed?

A- Yes Sir. There is the track of one at a place I spoke of called the Big Slide a short distance above what was then known as the Mc Murtray place which reaches from the top of the mountain to the river It is from 50 to 100 feet in length width and I suppose from 20 to 50 feet in depth and two to 3 miles in length. I never went up to the top of the mountain to ascertain the exact length of it.

Q- When did you first observe that? A- When I first went on to the ditch, the

9057

material brought down was entirely gone, there is nothing left but the track of the slide.

Mr. Meadowcroft That is what he saw the track

A- That is what I saw.

Mr. Mathis Any trees standing in its track?

A- Not in the track. Some miles above there at a place called Dicks I saw the track there of another very large.

Q- This one that you just spoke of I will ask you whether you heard the testimony of Joseph Price

A- I did not.

Q- Did you read it or do you know the land slide that he referred to, do you know whether this was the same one?

A- I simply know that he did refer to that particular slide that is all.

Q- There was a witness

here by the name of Price testified to seeing a land-slide come down that was near Mr Mutery's!
A- The slide at Dicks was very extensive, how extensive I could not tell but I think about a mile above there I saw another slide which came down from the south side of the river and only a portion of it went into the river. The remainder is standing there in a shaken up condition I suppose ready to come down at any time. Along the line of the ditch the most extensive breaks or slides that I have ever seen occurred near the foot of what is known as Oglebis Canon The ditch broke one night and the water running down over a point and turned off into a sag and filled that with water and swept out for a distance of half a mile

9153

and the middle of 100 feet probably 200 and 75 feet in depth that is it would be a triangle 100 feet wide on top and 75 feet deep on the bottom and carried it into the river.

2- When was that, when did that occur? A- That was about 2 years ago I think I was there a short time afterwards I was not there when it occured.

2- Well what effect did that have on the river? What became of that material that slide into the river from that slide? A- Well the most of the material that went into the river was of light loose material and has all disappeared now. There is none of it left, at least so little as not to be ~~noticeable~~ observable

I. State what systems of ditches or canals there are in that county. Just describe them before going into the details? A. There are three principal systems of ditches: The California Water & Mining Company's System, the El Dorado Water and Deep Gravel Mining Company's system; and the Park Canal & Mining Co's system. There are other ditches besides

Q Those are the largest?

A Those three comprise — cover the principal part of the County

Q Now describe the line of the California Water Company's Canals?

A It heads at Loon Lake. Their principal reservoir is there. From Loon Lake it drops into Gurley Creek, and it falls down Gurley Creek some 7 or 8 miles and is picked up in

9155

a ditch under it carried down 3 miles to the Little South Fork Ditch and in the Little South Fork Ditch it runs about 8 miles and goes through a tunnel at a place called Hoya Back and from there it is carried into the head of Pilot Creek, or near the head, and it follows down Pilot Creek to what some years ago was a reservoir site, but it has been destroyed there. A portion of it is then taken up in a small ditch. And a mile further down another portion is taken up and some distance further down, how far I can not say another ditch takes it up — what is called the Volcanoville Ditch. The upper ditch after running along nearly parallel for some two or

9206

miles, come together at a point called Mutton Cañon and thence continue one ditch going to Georgetown. The Volcano ditch crosses the two a little ways from what is known as Woorhs Ranch, and those two ditches run parallel all the way to Georgetown. At Georgetown they divide and a portion is carried down to Kelsey's divide and a portion to Georgia Slide, some to Greenwood and Pelth Hill, and Wild Goose Flat and in that country.

Q What is the extent of the reservoirs of that company, which they have to supply their demand

A The main reservoir is at Loon Lake. Its present capacity is about 600.000.000 cubic feet. The ultimate capacity when the new dam is completed is about

9157

2.500.000.000 cubic feet.

Q On what grades do the Canals run where they are excavated, the artificial Canals.

A The grades vary very much, from 8 to 12 feet and after they strike the Ridge there are frequent drops after they get up on the Ridge.

Q What is the ordinary daily flow of that Canal in inches?

A There total capacity is about 1200 inches

Q What are the waters used for, for what purpose?

A Well, that is a question I do not think I can answer.

Q How? A: I do not think I can answer that question. They are used for a variety of purposes but I am not sufficiently familiar with the distributing.

Mr Caldwalader It is used

for everything but mining
a. Considerable quantity
of use of Summer for irri-
gating purposes and some
for power
Mr Carlin You say you are
not very familiar with the
use of it? A No sir,
I am not.
2 Why? A Because
I have not been on that
divide
2 You have not been on
that divide?
A Not to pay attention to
the distribution of the
water in Summer
2 Well, can you give an
idea of the cost of the
Canals taking the reservoir
Canals and branches of the
California Water and Mining
Company? A They have
not cost less than $500.000.
2 State whether you are well
acquainted with the Canals
and properties of the Eldorado
Water and deep mining Company

A I am
Q Now describe there Canals
and Reservoirs
A The old South Fork Canal
heads at the foot of what
is known as Randolph
Canyon on the South Fork
of the American River. It
follows around by way of
reservoir hill and Smiths
Flat to Coon Hollow or
Coon Hill rather. The Iowa
Canal takes water out of
what was known as or is
known as Iowa Canyon
and runs around to a
point over Smiths Flat
and dumps into the old
South Fork Canal. The main
trunk Canal takes water
out of the South Fork of
the American River at
Cedar and Carries it thence
— Q (Interrupting) State
right here about how
far Cedar Rock is above
Placerville by the River
A It is about 35 miles

by the road.
Q About 35 miles by the road?
A Yes.
Q That is where the main Canal takes water?
A Yes it brings the water down through a tunnel opposite the 14 Mile House and around about Sportsman Hall, Thence it follows down the divide between Weber Creek and the South Fork of the American River to a point over Smiths Flat and it dumps it into the old South Fork.
Q You mean the old South Fork Canal?
A Yes the old South Fork Canal, from which point down that Canal has been enlarged to a capacity to carry the water brought down by the main trunk Canal
Q What is the length of the main trunk of the Canal
A The main trunk is 24½

Miles total length
Q What is the size of the Canal generally?
A It is from four feet and three tenths on the bottom to five feet and the sides have a slope of one to one The depth including the embankment is six feet. The flumes are 8 feet wide and six feet deep.
Q What is the grade?
A Four feet per mile
Q Can you state whether that is a light or a heavy grade for a ditch?
A For a ditch of that size in that kind of material it is a pretty good grade.
Q You say that kind of material, what kind of material?
A Well a great portion of it is through a sort of sandy - granite sand formation.
Q Is there fall enough

9162

there to have a larger grade if they desired it — a steeper grade.

Mr Cadwalader I do not see the materiality of that.

The Court I do not see why it should be so minutely inquired into.

Mr Catlin I want to show the character of the surface material, that it is very easily dissolved by the rains on the banks of these ditches

The Court The large section of the country you propose to describe of course must be quite generally described

The Witness As to the reservoirs

Q State the reservoirs — state the capacity of these reservoirs?

A The main supply reservoir is at Silver Lake it has an area of about one thousand acres and it is filled to a depth of — Well it is filled to the depth

A twenty feet but until a
Supply is required, the Sepage
and evaporation reduces it
to 17 feet. It will hold
about — it will Contain
at the time the water is
drawn out about 850,000,000
Cubic feet of water. The
next is at Echo Lake
which is on the eastern
side of the first Summit
of the Sierra Nevada Mountains
The dam there is about
eight feet deep. The water
is Conveyed through a quarter
of a mile of ditch and a
flume and a tunnel a
thousand feet long and
dropped into the head
waters of the South Fork
of the American River, That
will Carry about 350,000,000
Feet
Q Where is the natural
discharge of Echo Lake?
A Into Lake Valley
Q That is on the other
side of the mountain?

A Yes
Q Its natural drainage would not go into the South Fork?
A No Sir
Q It now discharges into the South Fork through these Canals?
A It does during the Summer months
Q Are there any other reservoirs connected with the Company
A There several other smaller reservoirs but they are only distributing reservoirs — the Blakely reservoirs and the Coon Hollow reservoir
Q They distribute the same water?
A Yes.
Q Can you give a statement in regard to the Cost of those Canals and reservoirs
Mr Cadwalader Ask whether they were not built long before he went there.
Mr Catlin You can ask him that question when

it Comes your return to
ask questions
Mr Catlin I ask you to
State the Cost of the
Canals reservoirs and the
branches Connected with the
Canals ?
Mr Cadwalader I object to that
question upon the ground
that the proper foundation
has not been laid
The Court Can you estimate
Cost ?
A Yes
Q State it
A The property of the Company
has Cost them over a million
of dollars.
Mr Cadwalader I move to
Strike that out.
The Witness that includes
the entire property
The Court That includes
though too much. State
the Cost of the reservoirs
and Canals
Mr Catlin The reservoirs
Canals and branches — not

any mining Claims but
I am speaking of the
Canals reservoirs and branches
Mr Cadwalader I object to that
until he shows that these
ditches and Canals were
Constructed after he went
there.
The Court He is speaking
from his Knowledge of the
works and his Knowledge of
what such works cost. He
says he is a civil engineer
and is engaged in that
business
Mr Catlin Have you had
anything to do with the
Construction there?
A I have.
Q How long have you
been employed or engaged
with the Construction of these
Canals?
A I have done all the en-
gineering since the Spring
of 1870.
Q Now state —
Mr Cadwallader (Interrupting)

He has not said that they were Constructed Since 1875
Mr Catlin it is not Material when they were Constructed
The Court If you Can give an estimate of there Cost you Can do so.
A It is over 700.000 dollars
the ditches and reservoirs
Mr Catlin I will ask you whether you were in Charge as engineer of the work for a time?
A I was principal Engineer in the Construction of the main trunk Canal from the middle of april 1875 until its completion, I was in Charge of the Construction of the Canal from Chunk Canyon to Smiths Flat, also of the enlargement of the Old South Fork Canal from Smiths Flat to Coon Hollow as principal engineer
Q Now describe briefly the location of the Park Canal mining Companies ditches

A They take water out of the North Fork of the Cosumnes River from two Sources. The lower Source brings the water around by Diamond Springs. The Upper brings it around to such a point that it Can be either Carried to Diamond Springs Or Carried down the Valley of Weber Creek.

Q Is not the discharge brought within the drainage area of the American River?

A The bulk of it is brought within the drainage area of the American River when they are using it.

Q State the general length of the Canal?

A I really Could not tell the exact length of the Main Canal.

Q State approximately if you Cannot tell exactly?

A Forty or 50 miles.

Q How many inches does it Carry. How much water

does it carry ordinarily?
A It will carry about from 1200 to 1500 inches - the two canals.
Q I forgot to ask you what the canals of the Eldorado Water and Deep gravel mining Company carried - how many inches?
A They have an ultimate capacity of about 6000 inches but they have not carried I think to exceed 3000. They have never carried more than 3000.
Q Are you sufficiently acquainted as an engineer with the Park Canal and Mining Companies Canals to estimate the cost of those Canals and if so state it?
A I am not. Those Canals - the main Canal was built in 1851. There are two of them - the Bradley-Berdine Company and the Jones-Firman Company. I have never tried to acquaint myself of the

Cost at that time. What they cost the present Company I do not Know.

Q Are you acquainted with the gravel beds in the County

A I am to a considerable extent.

Q Just state there extent and the general length of them, there Course and depth and width and the Character of the Material ?

Mr Cadwalader I object this witness has not shown any Knowledge on that subject

The Court ask him what observations he has made

Mr Collin Go on and state I asked you whether you are familiar and you said you were, State how and to what extent you are acquainted and what observations you have made ?

A Well I am particularly well acquainted with the Country between Weber Creek and the South Fork of the

American River, the North Side of the American River the North side of the South Fork of the American River between that and Silver Creek and along the line of Weber Creek.

D What has been the Character of your acquaintance – what have you being doing there to become acquainted with them ?

A I have been engaged in Surveying mines and ditches Etc, I have travelled over the entire Country and I have been in a good many of the mines

D For how long a period of time ?

A Ever since I went there

D Now upon your Knowledge and information just state

A The main Channel South of Placerville reaches from Coon Hollow around to White Rock – a distance by the Channel of about 12 miles From Smiths Flat up to the

9172

Fourten Mile House there is another gravel deposit that has a distance of about six miles from Plum Creek, which is the furthest up that I know on that side there is another Channel which Comes down below the Pacific House and crosses over into Sly Park. There is another Channel which starts from Somewhere near the Fourteen Mile House and runs across Weber Creek Valley to the Neighborhood of Pleasant Valley on the Cosumnes

Q- What is the general length of this- the aggregate length of these various channels? A- I have not completed my description of them Q- Go on then.

Mr. Leadwodladen I object to this speculative testimony from a mere mining surveyor. He would not know anything about them.

The Court Could you follow them from anything you saw then? A- Yes.

Q- Go on? A- There is a channel which runs along the south side of Weber Creek and comes out at Diamond Springs - perhaps a little beyond that and it has various sections On the Georgetown divide they are more irregular and they occur in spots. There are probably 50 miles all told

Mr. Leadwodladen I object to this it is mere speculative testimony and this witness is not a miner.

The Court You have already

introduced evidence as to the extent of these channels remaining to be mined and if there is no expectation that there will be no conflict of it. It seems to me it is a waste of time to go into it further.

Mr Leadwalader We do not know how a simple engineer and a surveyor of mining claims can be permitted to talk upon the subject of this kind - channels running under mountains and sometimes under creeks He is not shown to be a mining expert; that is my objection.

The Court He says he has been engaged in surveying mining claims and that those channels can be followed

Mr Lathin You have stated the length and location -

Mr Leadwalader (Int'g) Does Your Honor allow him to testify to this without being an expert.

The Court He says that he can follow them but I do not see the value of this testimony.

Mr Leadwalader - I except.

9295

Mr Catlin Q State if you surveyed claims on this channel? A I have

Q State whether these surveys that you made on this channel — whether they were underground surveys or whether they were on the surface?

A Both underground and on the surface.

Q What is the character of the mining there on this gravel bed? What kind of mining do you call it? A The mining that is now being conducted on the main channel is what is called drift gravel mining.

Q And it is this kind of mines that you have been engaged in surveying on this channel?

A I have been engaged in surveying both drift and hydraulic mines

Q You have been engaged in surveying both?

A Yes.

Q State the character of material of which these gravel beds are composed? And what they are?

A Next to the bedrock is a stratum of cemented gravel. Over that are alternating strata of gravel and lava, the lava predominating and sometimes reaching up to the height of 200 feet in that main channel

Q State whether these gravel deposits are generally overlaid by the lava formation?

A They are

Q Have you examined the Gold Run mine?

A I have

Q State in what particular these gravel deposits

differ from the deposits in the Gold Run mine?

A They differ almost entirely from the fact that the bottom stratum of the gravel is overlaid with a very heavy mass of lava

Q What results in regard to the mode of mining from that channel being overlaid by this heavy stratum of lava?

A The result is that except along the line of the rim rock it is too expensive to break up the rock and mine it by the hydraulic process. and the miners are compelled to resort to drift mining

Q Do results in drift mining as being the best method of mining it out?

A yes

Q As the only practicable mode? A The

only practicable mode that can be used in that locality

Q Now in regard to the mode — the future mode of mining this ancient gravel bed that you have described. State how it is and must be mined?

A almost exclusively by the drift mining process

Q Did you state its general depth. Dash you about the general depth of this ancient river channel? A well it varies from 100 to 300 feet. Some places more than that.

Q and its width?

A the entire width of the main channel and its benches is probably about 3000 feet

Q Now state to what extent mining has been carried on in this drainage area of which

you have spoken in El Dorado County from observations which you have made yourself and indications which you have seen since you have been in that County?

A The most extensive hydraulic mining that has ever been done in that County has been done at what is known as the Excelsior Mine at Coon Hollow. Then on the opposite side of the ridge back of Placerville, South of Placerville is a stretch of about a quarter of a mile which has been mined to a depth of perhaps 30 feet perhaps 30. Then at different points on the South side of the ridge there has been a small amount of mining done in that way. At Spanish Hill that kind of

mining has been carried on for some time. At Reservoir Hill there have been two or three quite extensive masses of material washed out and some has been dumped at White Rock.

Q. What is the depth of the washings from the top to the bottom? A. At what point?

Q. At any of those points generally — the depths of these hydraulic washings?

A. They vary all the way from ten feet up to 200. Spanish Hill is the deepest.

Q. What acreage of that kind has been washed off, say at the Excelsior?

A. About 40 acres.

Q. About 40 acres? A. Yes.

Q. To what average depth?

A. To an average depth of about 100 feet.

Q. Into what dumping place did the material go?

A. It was dumped into the ravines running into Weber

Creek.

2. At a point about how far above the mouth of Weber Creek or the intersection of the Weber Creek with the South Fork? A. About 14 miles.

2. Well, just state how much acreage at Spanish Hill, where you say the deepest, highest banks occur — what acreage has been washed off there by the Hydraulic process?

A. Probably 10 acres.

2. To what depth?

A. An average depth of 150 feet.

2. Where did that material go?

A. It was dumped into Spanish Ravine and Taylor's Ravine, tributaries of Hangtown Creek.

2. At a point how far from the intersection of Weber Creek with the South Fork?

A. About 12 miles.

2. Where does the heavy material going from those hydraulic washings appear to lodge?

A. Well it has all been dammed

9482

up in the immediate vicinity of the mine.

Q. It has been dammed up within the immediate vicinity of the mines — the heavy material.

Q. How dammed up?

A. By means of brush dams.

Q What was the purpose of constructing the brush dams? What was the object of damming it up?

A The probable purpose was to retain it.

Q. Why did they want to retain it?

A. For future washing.

Q. To wash it again? A Yes.

Q. Is that the case with all these mines whose material goes into Weber Creek?

A No sir. It is the case of the Excelsior. I believe it is not the case of one or two small mines a little further up.

Q From your observation since you have been there, and the mining you have seen since

you have been there and the evidence of former mining, the old Placer mining, Can you state comparatively how much of the old Placer mining there was as compared with that known as hydraulic mining?

A. I think the hydraulic mining will stand as about 10 per cent to the other.

Q. Out of all the mining excavations only ten per cent of it is by the hydraulic process?

A. Yes.

Q. State any creeks, cañons or places, that you know of, that are filled, in any manner, by the debris from the old washings?

A. From the old washings?

Q. Yes.

A. Well there is the Georgetown Divide, then is Rock Cañon, Johnstown creek and Irish Creek.

Q. How deep is Rock Cañon filled up with this mining debris?

A. The section of it that I saw, was probably filled up ten feet deep.

Mr. Cadwalader. Where is that?
A. It is south east of Georgetown.
Mr. Bathin. How with regard to Johnstown and Irish Creek or Dutch Creek or whatever you called it?
A. Johnstown Creek is partly from that and partly from Sawn diggings. Irish Creek is entirely filled from the old style mining.
Q. Where do these cañons discharge?; into what river?
A. Into the South Fork.
Q. Directly into the South Fork?
A. Yes.
Q. How long since apparently was it that this mining was done in these cañons, such as you have described?
A. Indeed, I do not know.
Q. Are they recent or they done within the time that you have been there?
A. It has not been done since I have known them.
Q. But the debris has been there — that, that you have spoken

of has been there all the time?
A. Ever since I have known them.
Q. What is that debris composed of in these creeks and cañons?
A. It is composed of bowlders, cobbles, gravel, sand compacted together.
Q. State what effect the winter floods and storms have upon that debris?
A. They have their effect on these streams — no apparent effect.
Q. It passes right over them.
To what extent is hydraulic mining done now in Eldorado County? A. I really do not know of a single mine that is in present operation. I do not know of a single mine that is in present operation.
Q. I will say then within the year pasted? A. Within the year past there have been the Loomis Mine, the Tennessee Hill Mine and the Snow Mine.
Mr. Cadwalader. The Tennessee Hill Mine is the Park Canal

9.86

Mine? A. Yes.

Mr. Catlin. How extensive are those hydraulic mines? State whether they were large workings or not? A. They were very small workings, all of them. I think not more than 500 inches, at the Comis, of water; about four, at Tennessee Hill and not to exceed 300 at the Snow Mine.

Q. When did they cease? What time did they quit?

A. Well, Snow Mine and the Tennessee Hill Mine stopped in the Spring; the other I do not know really ~~anything~~ when that did stop.

Q. State to what extent this drift gravel mining is carried on now or has been carried on recently? A. It is being carried on very extensively. On this side of the American River I know of 80 stamps now running on drift gravel.

Q. Is all this material crushed?

A. All crushed.

Q. In ordinary stamps?
A. It is what is called the gravel material — it is lighter material. It is lighter material than the quartz material and the stamps are lighter, about ½ the weight of quartz stamps.
Mr. Cadwalader. You say there are about 80 stamps running on cement? A. Yes.
Mr Catlin. Those are running on cement gravel alone? A. Yes.
Q. That you know of? A. Yes.
Q. How many stamps are running on quartz in the County? A. In the County?
Q. Yes, if you know or can approximate it.
Mr. Cadwalader. Name the mills and the number of stamps.
Mr Catlin. I shall insist upon examining the witness. You can have a chance at him by-and-by.
Mr Cadwalader. Keep him within the water-shed of the American then.
Mr Catlin. There is where I am confining him.
The Witness. To the water-shed of the American?
Mr. Catlin. Yes. I am limiting all my questions to the drainage area of the American River.

9288

A- Well I know of about forty on that drainage area. I think there are a good many more though I will no be sure about that

Mr. Cadwalader Forty quartz mills?

A- Forty stamps

Mr Catlin What is the daily average crushings at the Cement Mills?

A- It runs from three and one half to a little over four tons per stamp. A ten stamp mill does an extremely good months work when it runs up to 1250 carloads, that is equal to 625 tons.

Q- How much will the quartz mills that you know of crush on an average?

A- From a ton and a half to two tons.

Q- What other mines besides this which you have described is now or recently carried on operations in this watershed of the American in El Dorado County?

A- There are a great many men who are working in

9189

placer claims, drifting &c.
How many I cannot tell.
Q- Is that confined to any
particular place or is it scat-
tered? A- Scattered
all over the country
Q- Are you acquainted with
the bed of the South Fork?
A- I am to some extent,
Q- State whether there are
any recent deposits of debris
in the South Fork of the A-
merican if so, state to what
extent? By recent I mean
within a few years past?
A- Since my acquaintance
with the South Fork I have
not observed any particular
change in the bottom of the
channel at all. There has
been more or less hydraulic
mining done, and the debris
from gravel mines has run into it but
I did not notice any par-
ticular change in the con-
dition of the bottom.
Q- Have you observed to

9193

what extent it is apparently filled?

Mr. Leadbeater I object to that as leading and the witness says he did not notice any change in it.

The Court The question assumes that there has been a filling.

Mr. Leathers 2- State what you have noticed in regard to the character of the bed of the river?

Mr. Leadbeater I object to that, he has asked the same question and it has been answered in two ways.

Mr. Leathers I first asked him if he had seen any recent deposits of debris and he said he had not

The Court Now you ask him whether there is any deposit at all.

Mr. Leathers— That is the question I am trying to ask him

Mr. Leadbeater I do not

object to that.
The Court State if there is any filling there at all
A- Wherever the Canon of the River widens out it is more or less filled with boulders and gravel and sand etc., Where the canon is confined the larger portion of the material is washed off. Whatever the deposit may be.
Mr. Cutler Are you acquainted with that portion of the River where the Coloma basin is situated?
A- I am.
2- State the appearance of the river channel at that place with respect to deposits? A- There is a distance of about a mile and a half along the channel which is filled at the present time to a depth varying all the way from 8 to probably 20 feet.
Mr. Goodwaladen That is at Coloma?

A- At Kaloma. The material that is deposited there seems to be very solid and almost immovable I judge of its solidity from the fact that I saw a canal which had been constructed to carry water and the entire stream measuring probably 3000 inches was running through that Canal while a sink had been made to a depth of probably 14 feet within ten feet of the canal and one of these small Chinese pumps carried all the water off.

Q. State what effect upon these deposits that you have just described is made by the annual winter freshets

A. I have been passed Kaloma a good many times for the last few years and I have never observed any change in the channel at all.

Q. What is the length of Weber Creek from its inter-

section with the Sabetha Fork up to its head?
A. About thirty miles.
2- State about depth of deposits and debris there are in Wenn Creek?
A. The deposits vary in depth from the Highville Mine as you go down the creek clear down below Michael O'Keefe Bridge
2- Give the distance?
A. It is a distance of 8 or 10 miles I could not tell you exactly the sinuosities of the stream. The deepest deposit that I know of is at Morrill's Bridge on the road between Placerville and Diamond Springs. I should judge that the depth there was probably 15 feet right at the bridge. From there it continues up the stream with a slight increase at the dump of the Loomis Mine and then it grows lighter again up to the Ju-

Tennessee Hill Mine and from there up it varies from nothing to probably 5 or 6 feet in depth

Q- This town place where you say it is about 15 feet deep, where is that from the mouth of the Creek? A- It is about 14 miles

Q- And how is it from there down to the mouth of the Creek A- It seems to grow lighter as you go down. There is none in sight until when you come down to the crossing of the Coloma and Folsom road

Q- State during what times these deposits accumulated there in Weber Creek?

A- The largest portion of them were there when I first saw the Creek. There has been an increase at the Morrill bridge since that time and some at the dump of the Loomis Mine and some at the Tennessee Hill Mine.

9195

2. State whether the annual freshets – what effect they have upon the bed of the Creek with reference to the debris that is there?

A- Further than moving the very light sand they do not seem to have any effect at all. There is a point on the Creek above the Tennessee Hill Mine and about Newtown which I have passed a great many times in the last 5 or 6 years and it looks exactly the same now as far as I can see as it did then. There piles of tailings which have been dumped in long years ago reach out into the Creek and the point of them has been torn off but when the Creek is up it rises several feet on the sides of them and I can not discover that it has moved it a particle. The end of the canal stands almost perticler.

Q. How are the banks of Weber Creek generally, broken or abrupt? A. They are irregular, at some places they banks are very nearly vertical, at other places it spreads out into little valleys

Q. State into how wide about how wide a valley it spreads out in that way Mr. Cadwalader I do not say it spread out into a valley

Witness I said little valleys I say it spreads out. Sometimes it is confined to a channel perhaps 20 feet wide and then it comes to perhaps 100 and in some places 150 feet wide

Q. From your observation of the effect of severe rain storms during your residence I will ask you whether that storm as severe as any you have ever known comes dislodge those deposits

9197

A I think not to any considerable extent

2. How was the last winter season there? What is called a heavy rainy season?

A No, not extraordinarily so. We had some severe storms

2 What effect did these have upon the deposits in Aiken Creek so far as you observed? A There was an increase in the deposit at Morris Bridge during that storm, or at least the water rose so that it carried away the bridge. Whether there was an increase of deposit or not I could not say

2 There was an increase of water there? A Yes.

2 You have seen it since the water went down. How did the deposits there at Morris bridge compare with the way they had been previous to the time

the bridge was carried away by high water?

A I noticed no particular difference.

Q Have you observed the effect of deposits upon the surface, deposits of debris upon the surface in the neighborhood of Weber Creek or Kaytown Creek?

A Yes.

Q State what effect it has had; whether those deposits are utilized in any way? A The best land we have on the line of Kaytown Creek is land which has been made from deposits of tailings.

Q To what extent and how are they utilized? In what way and how do they use them? A. The proprietors of the ground along the banks of the creek built walls connected with the creek, put in brush dams across the

ground they have fenced out, turned the stream into it and allow it to fill up, and when they have it filled up they have a very fine piece of ground. Probably between Smith's Flat and Fraser Ranch there are 20 pieces of such ground that has been raised in that way, varying in size from 1 acre to 15

Mr. Cadwalader That is on Hangtown Creek? A Yes.

Mr. Catlin You stated you had visited the Gold Run mine? A Yes.

Q When? A I think it was the 19th of October last, I would not be positive (Examining notes). No 1. the 19th of November.

Q Did you examine the mine at that time?

A I passed through the mine and remained there a short time

9200 Q What kind of an Exam-

cation of the mine did you make, just state?

A We went down the lower pit and examined the formation and then we passed over the ridge the mouth of the flume and followed down Cañon Creek & the North Fork of the American, and thence down the Channel of the North Fork & Rice's Bar.

2 Describe the character of the gravel in that mine that is being worked?

A The bottom material is a very hard cemented material, cement to be particular hard. Standing up to the height of perhaps 100 or 120 feet it was a material which was not quite so dense as perhaps the bottom material. But all was what was usually termed Slum gravel; very little if any light material in it.

9201

2 How as to hardness?

A. I found it pretty hard. I used a good many pieces with a sledge and I did not find any piece easily broken

2. I am speaking of the upper portion not the bottom. How hard did you find that

A The boulders seemed to be a hard as that in the bottom but it was not as closely cemented

2 As to general compactness, state? A I say the upper portion did not seem to be as compact as the lower portion

2 Well, as to the character of the material of which it was composed?

A The material was all what I understand is called cemented gravel, but not so closely cemented as that in the bottom. There was no appearance of red earth or any thing of that kind there

2 You passed down Canon

Creek into the North Fork and from there down to Rice Bridge? A Yes.

2 How did you travel down?

A Horseback

2. In the bed of the river?

A Yes.

2 Describe the character of the bed of the river there as to solidity and character generally. A The bed of the river then entire distance was filled with debris. It was a very hard and compact road, as fine a road as I ever traveled over

2 Compare them with the reports that you find in the South Fork and at Weber Creek, how are they?

A The difference is in this: that taking the Excelsior mine for example the gravel Compares very near with what I saw there

Mr Cadwalader That was not the question.

Mr Catlin No but that

in the answer, go on.
Witness That is what I understood you.
Mr Catlin I say, go on and answer it?
A The addition of the lava which when they were hydraulicking had to be blasted down and broken up into pieces render perhaps the material from the Excelsior Mine, a little harder to operation than that in the others
Q I will ask you whether you have made any Examination of the drainage outlets of Sacramento City?
A I have to some extent
Q Since when and during what time? A Since I have been here, in the last two months
Q How long? A The last two months.
Q Have you measured the amount of the drainage from the drainage Canal that

9204

passes out at Y. Sluet; the drainage Canal or Sewer?

A I assisted Bassett in making the measurement.

Q Did you together jointly make the measurement?

A He had charge of the measurement. I was present and assisted him

Q State how you measured it, and what means you took for the purpose of making an accurate measurement?

A We measured it by a weir, that is, a dam placed across the Canal below Y. with a weir three feet in length through which all the water was forced to pass. The measurements were taken by two assistants, every 15 minutes during 24 hours, Commencing at 12 oclock on December 21st and Ending at 12 oclock noon, December 22nd

Q By that measurement owned you obtain an average

9205

for the 24 hours of the discharge?

A Very nearly

2 How many gallons were discharged there during the 24 hours by that weir?

A 400.000 gallons

2 Did you ascertain at the same time what amount was pumped into the City by the City water works.

A I did, by Cunningham, the Engineer of the City water works.

2 How much was it?

Mr Cadwalader We object to that as hearsay

Objection sustained

Mr Carlin Have you ever examined any of the sources of supply to what is called the Sipage or underground drainage of the City?

A I have, to some extent.

2 State what you find in regard to Burns Slough on that line of drain?

A. There are 4 artesian

wells out there where Burns Slough is croped by the levee

Q Right at the head of the Slough, do you say?

A Just below the levee; this side of the levee

Q Inside of the levee I suppose you mean? A Yes.

Q. How many artesian wells did you find there? A Four, 2 of the 60, one 70, and one 200 feet in depth

Q Did you examine them more than once? A Twice

Q What period of time between the two Examinations?

A Several weeks

Q. Now what was the discharge of those four artesian wells approximately?

A I assisted in measuring two of them, two of the smaller wells. They aggregate about 40 galons per minute, the third one would probably aggregate 55 galons per minute. The

9207

layer well it was impossible to measure on account of the flow.

Q Could you form an Estimate by seeing the discharge, how it compared with the other?

A I could Estimate, probably that the entire discharge would be Equivalent to say 300 gallons per minute. But there was a good deal of it underground, none of them are tight and it was impossible to measure them with accuracy

Q. How high above the surface was the discharge?

A About a foot or 15 inches

Q State whether you saw Burns Slough at other points below there? State whether you observed Burns Slough and the course of it and whether you examined it at other points?

A I did, I was along almost the entire length of what is known as the

9208

drainage Canal running out
31st St and down the South
side of Y Street & its junc-
tion with the old Burns
Slough, and also measured
the quantity of water then
running through that Canal,
& followed the old Burns
Slough over a considerable
portion of the Canal

2 Shall whether there
is a considerable part of the
Canal cutting off Burns
Slough? A There is.
I followed that nearly
the entire length.

2 Just describe where that
goes? A It cuts off
Burns Slough I think at
31st St. and crosses along
that street to Y. Street and
then cropsing Y. Street goes
down the South side I
believe a little to a point
between 14th and 15th Streets.

2 What is the effect of
that Canal upon the drain-
age of Burns Slough above

the point where the Canal cuts in and takes into Bums Slough?
A The effect is to cut it off entirely
Q From where?
A From running into what is known as Bums Slough.
Q And thence into the City?
A And thence into the City.
In addition to that, I think it probably would have an effect in keeping off what they call storage water from coming down from the higher ground above there
Q State how large a canal that is and when it was constructed, if you know
A The Canal is four feet wide in the bottom I believe, with a slope I believe of about ½ to 1. It appears to be from 7 to 10 feet in depth. As to its grade I can not inform you.
Q Is there a constant discharge of water there?
A Yes. When I assisted,

9210

in measuring it. I think the figures show the discharge was approximately 80,000 cubic feet, per day

2 When did you measure that, recently?

A About the 21st or 22nd of December

2. Is that a new canal from its appearance?

A Yes.

2 Suppose that canal were not constructed, where would that water that it now carries off along 31st Street and so down to J. Street and outside of the City, go?

A It would necessarily follow down what is known as Burns Slough

2 What is the general course of Burns Slough through the City? A South-west

2 I think

2 From your observations state whether that would contribute to the underground supply, as it is called here?

921

A. Deemed say that it certainly owned.

Mr. Cadwalader What do you say owned contribute?

Mr. Catlin The water in Penny Slough cut off now by this Canal.

Q Have you examined Sutter Lake, this large lake between here and the Railroad?

A Yes.

Q State whether you took the level of that water at any time during this trial and if so about when you took it?

A (Examining notes) On the 14th of December I found by the use of what is called a hand level that the lake was about 2½ feet below the carrier. The main mark is at the foot of K Street I think.

Q. Below the main at the K Street Gage as it is called.

A Yes. Eleven feet six inches and the mark making the

height of Sutter Lake about nine feet

Mr. Cadwalader Taking the K St. gage as a guide?

A Yes.

Mr. Catlin At that time the water of the Sacramento stood on the K St. gage at 11 feet 6 inches?

A Yes.

2 And the water in Sutter Lake was 2½ feet below that?

A Yes.

2 Have you examined and taken a level to see whether Sutter Lake has risen or fallen? A. I have observed the lake several times since then, and I think it is perhaps a couple of inches higher than it was at that time, not to exceed that, I think.

2 Have you made marks to ascertain?

A Yes, at points and watch it

2 Has it changed in color?

A Not that I can discover.

2 But it has risen you say during the time since you first examination. When did you make your last examination? A To-day

2 And it has risen about two inches? A There was a day marked about 15 feet 6 inches as near as I can tell

2 Did you examine the gauge to day in the river? A Yes.

2 And it was up 15 feet 6 inches? A Yes.

2 State whether you have examined it more than once since you first examination & see whether the river has risen or fallen in different times? A Yes, I have noticed it quite a number of times

Mr. Cadwalader What is the object of this testimony?

Mr Carlin To contradict and overthrow entirely as

we attend to do before we get through with this case, the theory you attempted to establish in making your case: that the rise and fall of the water in the river caused a rise and fall of what you call Sewage water here in this City.

Mr. W.C. Belcher By direct Sewage

Mr. Catlin Yes. One of your witnesses testified that the water in the ground here, in the privy closets and low places rose and fell as the water in the river rose and falls.

Mr. Cadwalader But this lake has an artificial bed and bank.

Mr. W.C. Belcher So has the river.

Mr. Catlin. It has the same kind of artificial bed that all lakes have I suppose.

Mr. Cadwalader No, it has been filled up by the Railroad Company and the City.

Mr Catlin I am not speaking of that part of it that has been filled up. I am speaking of that part which remains unfilled

Mr. Cadwalader Go on, I do not want to interfere with so elderly a gentleman.

Mr. Catlin State the condition of that lake as to cleanliness or filth?

A The borders are not particularly cleanly

2. What was the appearance of the water? Was it natural looking?

A The water looked dark green color. Whether it was clean, and had received its color from its depth, or whether it had been colored by any means, I cannot tell

2 Can not you tell the difference between water that has a green scum on it and clean water? A. It had not green scum on it

2 Was it the natural

color of water?
A It was the natural color of water having considerable depth
Mr. Cadwalader There are iron spring in that lake, quite a number of them.
Mr W C Belcher They are green are the not
Mr. Catlin State what the appearance of the border of the lake was on the I Street side?
A There were large deposits of filthy looking material scattered along the shores of the lake, deposits of garbage and so forth
Q Describe what uses it appeared to be put to, by the China residents of I Street
A I could not discover any use they put it to except as a receptacle for garbage.
Q Did it appear to be used for that purpose?
A The I Street side indicated that
Recess until 9.30 a.m. Jany 7th/82

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In the Superior Court
of the State of California
in and for the County of
Sacramento

The People of the State of California
vs.
The Eagle Ravine Ditch and Mining Company

Morning Session
Saturday
January 7th 82

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Winfield J. Davis
Official Reporter

In the Superior Court
of the State of California
in and for the County of
Sacramento

The People of the State of California
vs.
The Zoes Rum Ditch and Mining Company

Morning Session
Saturday
Jany 7th/82

Testimony
of
E. A. Smith

direct resumed

Mr. Catlin. I omitted to ask you to state the rain fall in one other place in Eldorado County, Shingle Springs. I thought I had done so. Please state it.
A. This is a table from the record of Dr. Edwards:

1849-50	39.25	1853-54	30.15
1850-51	17.26	1854-55	19.50
1851-52	32.50	1855-56	18.60
1852-53	47.57	1856-57	26.11

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1857-58.....	19.91	1862-63.....	19.27
1858-59.....	31.41	1863-64.....	24.27
1859-60.....	28.09	1864-65.....	34.43
1860-61.....	26.25	1865-66.....	36.86
1861-62.....	77.80	1866-67.....	50.30

That is as far as the record extended. He died at that time.

Q. Who was Dr. Edwards; what was he?

A. I do not know. I only know—

Mr. Cadwalader. (Duty.) That is at Shingle Springs?

A. I know the report was made by him; the records were made during the time he lived there.

Mr. Catlin. Q. Dr. Edwards was a physician of considerable standing who lived at that point, from 1849 until he died, about in 1867.

Mr. Cadwalader. That is not in the American river watershed?

A. Yes, it is right on the divide.

Mr. Catlin. It is on the Placerville road. State how far this side of Placerville?

A. About ten miles by the stage-road.

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2. And about how far from this city?

A. About 36 miles, I think.

Mr. Cadwalader. That is, by rail?

A. It is about 20 miles by rail and 16 miles by stage from Folsom.

Mr. Catlin. Please state Mr. Smith what proportion of these ancient river-channels, that you described yesterday, remained in work?

A. About 9/10; that is my estimate.

2. State whether you have made any estimate of the amount of gold extracted from the mines in Eldorado County in this drainage area which you have described.

Mr. Cadwalader. I object to that on the ground that the witness is not an expert. He has only been there seven years.

Mr. Catlin. He has been there seven years and the question is:- Is that time enough for a man to form his opinion from such observations as he

could make?

Mr. Cadwalader. He is a surveyor.

Mr. Catlin. Even if he was not a surveyor and if he was an ordinary miner, he could form some opinion. My question is whether he has made an estimate. That is the first question.

Mr. Cadwalader. The objection is that he is not ~~determined~~ shown to be an expert on that subject.

The Court. I supposed that we had been over that fully with the other witness.

Mr. Catlin. It is a fact that we may want to prove by more than one witness, especially ~~if it~~ if it may be controverted.

The Court. I do not suppose that this witness can know it of his own knowledge.

Mr. Catlin. Of course no one can know it. He can only know it to the extent of his own observation.

The Court. It does not seem to me to be worth while to

consume very much time with this.

Mr. Catlin. I understand the Court to rule that this testimony is not admissible.

The Court. It is objected to as incompetent, and, as I understand, he can not possible know it of his own knowledge.

Mr. Catlin. We have had estimates of this kind from witnesses and each one's estimate depended of course on the extent of his acquaintance with the subject.

The Court. This witness was not in the country, when the bulk of this gold was extracted. He was not there during a great part of the time, during which the gold was extracted.

Mr. Catlin. I propose to prove — to take the opinion of this witness, based upon the observations he has made during his seven years residence in the County, of the gold mining that has been carried on during that time, and of such evidences of past

gold mining as he has seen, and from sources of information obtained by inquiry into the subject.

The Court. The amount that has been taken out in seven years?

Mr. Catlin. During the whole time of mining in that County. Of course it is based upon information obtained from others to a great extent.

The Court. Necessarily. I do not see that it would go to the original amount.

Mr. Catlin. We have had a great many estimates as to the production of the State, but this estimate is proposed to be confined to the drainage area of the American River and I do not know that any witness has limited it to that particular section of the country.

The Court. Yesterday you had estimates from Mr. Blanchard as to the production in Eldorado County.

9223 Mr. Catlin. But this testimony

was not limited to the drainage area. It went to the whole County.

Mr. Cadwalader. Both.

Mr. Catlin. The only difference between the testimony of the two would be that Mr. Blanchard has lived in the County for a good while from the beginning up to the present time, but his testimony, and that of all other persons who make estimates, must be based very largely upon all sources of information. It is true that we have to take judicial knowledge, to a certain extent, of this matter; but that judicial information may be supplimented by testimony to aid it at least or to qualify it.

The Court. Mr. Blanchard's evidence differs in that he had better opportunities than we have ourselves and I do not see that this witness has.

Mr. Catlin. I will ask the witness a question or two first.

State what opportunities —

Mr. Ladvalader. <Intg.> I understand that the Court has ruled on this question now.

Mr. Catlin. On the ground that the witness has had no opportunities for knowledge on this particular subject. I will, with the permission of the Court, ask him a few more questions on that subject to see whether the proper foundation can be laid.

The Court. It would be simply a consumption of time. It is not one of those questions that is of vital importance in the case.

Mr. Catlin. We will simply reserve an exception and pass to something else.

Ex.

The Court. It is one of those questions upon which general results alone are given and it does not make any difference whether they are accurate or only a rough estimate. It is not as vital as some other questions in the case.

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Mr. Catlin. I will ask you a question on another subject: whether you have observed the effect of the melting of the snows and of rain-storms on that portion of this drainage area that lies above the mineral belt?

A. I have.

Mr. Cadwalader. He went into that yesterday. He said he saw snow-slides up there and 20 miles of ditch washed away.

Mr. Catlin. That was within the mineral belt.

The Court. Go on.

Mr Catlin. Describe the effect of the melting of the snows during the spring and summer season and their effects upon the tributaries of the South Fork of the American River?

A. I went up on to the ditch the first of May 1876.

2. I am inquiring now above where there is any mining?

A. Above where there is any mining, at the mouth of Alder Creek. During the succeed-

-ing month the snows, which had been very heavy in the mountains that winter, continued to melt and there was a constant change in the volume of the water in the river. Commencing about 2 o'clock, in the afternoon, it continued to rise until ten o'clock at night and remained at a standstill until about two o'clock in the morning, and then gradually fell until ten o'clock the next day. When the day happened to be particularly warm the river would become very muddy — sometimes almost black with mud; as the water fell it would clear up, carry nothing but light sand. It changed in that way from day to day.

2. During what great a period of the season after the rains — after the raing season has ceased, how long does that continue? A. That year it continued under my observation from the first of May

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until the middle of July. By that time the snow had pretty much all gone from the mountains.

2 How high up in the mountains or how near to the summit have you observed that muddiness of the streams as described?

A. Alder Creek is about 30 miles from Placerville.

Q. I am asking you how near to the summits have you seen this? A. Well, the elevation at that point was — I will have to look at my notes.

Q. How near to the very tops of the mountains, within how many miles of the summits — what you call the summit of the Sierras?

A. About 25 miles below the pass — Johnson's Pass.

Q. Have you ever observed it still above that — the effect?

A. I never was above that during the time that the snow was melting.

9228 Q. You have seen the water

coming from above that point in the ravines.
A. That is what I refer to.
Q. Well have you observed the action of freshets in the South Fork it-self, at a point above the mineral belt during any freshet. A. In November 1875 we had a flood which was a greater one than had occured for a good many years at least and a greater one than has ever occured since.
Q. Did you say in November 1865? A. November 1875.
The river was for 24 hours very high and very muddy.
The flood was caused by a large amount of snow having been deposited on the mountains above, followed up by a warm rain which carried it off.
Q. What was the character of the sediment that the stream carried?
A. Dark-like soil.
Q. Dark-like soil. Can you state from what source this

sediment came?
A. It must have come from the sides of the mountains.
Q. From the sides of the mountains. What character? From rocky sides or from sides where there is soil?
A. There is a great deal of the mountain country there which is covered with soil to a very considerable depth.
Q. How as to the other parts of it?
A. Well there are occasional bare spots some places, places that are entirely bare.
Q. Bare of soil? A. Yes.
Q. What is the formation there?
A. On the Silver Creek Ridge, and for a considerable distance up it is lava; but up the South Fork, all the way from Alder Creek to the summit inside, but granite that I know of.
Q. Can you state to what extent the pine forests have been destroyed or cut down in this drainage area?

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A. Of the lower forests — that is up to a point, as high, as Sportsman's Hall a very large percent of the timber has been cut off. That is, it is gone. Above that to a point say five or six miles above Georgetown the per cent is very small. The largest amount of damage that has been done to the timber above that point has been done aby the shake-maker.

Mr. Cadwalader. That is the finest timber belt in the State, is it?

A. Very fine timber.

Mr. Catlin. Is there any lumber manufactured, pine lumber in this drainage area; if so to what extent annually about?

A. I made some three years ago an estimate of the lumber cut in the entire county. Judging from that, without any increase, I think in that drainage area there was cut in the past year about five million (5,000,000) feet.

9231 2. Do that about the ordinary

annual production?
A. I think so. The annual production varies somewhat with the local demand.
Q. I omitted one question in regard to the material that you found in the Gold Rim Mine when you were there. I will now ask this question: What proportion of the material in the Gold Rim is sand or fine material and what proportion is heavy material such as gravels, cobbles and bowlders?
A. Well, I should place the heavy material about 90 per cent of the entire mass.
Q. State whether you have, in the mountains, in the drainage area, spoken of in Eldorado County — whether you have observed the effects of frost and snows upon upon the granite rocks or upon the granite formation generally?
A. I have to a limited extent only.
9232 Q. Well, describe to what extent

and what it is?

A. Well, the action of frost and snow has, of course a constant degradation of the surface of the granite rocks.

Q. I am not speaking of the proposition generally, but what observations in regard to its effects — what have you seen and observed in that section of the country?

A. I have made no special observations in regard to it.

Cross-Examination of E. A. Smith

Mr. Cadwalader Where did you study Civil Engineering?

A I studied it at the University at Lewisburg Pennsylvania

2 The University of Lewisburg?

A The University of Lewisburg

2. What University is it?

A Well, it is a Baptist University

2. Where is Lewisburg?

A It is on the west bank of the Susquehanna River a few miles above the junction with the north branch.

2 You came to California when?

A I came to California in 1873

2. You settled in Placerville?

A I went to Placerville about the 1st of April 1875

2 And have been there since?

A I have been there a great portion of the time since

Q That covered be 6 years?
A Nearly 7 years
Q Who kept these rain gages at Placerville & who kept the rain gages at Placerville?
A R. M Welsh, during the greater part of the time?
Q Who is now keeping it now and Mr. Otale
Q Where was it kept?
A It was kept on top of the Company's office, the Building
Q On top of what?
A On top of the building where the El Dorado Water and Deep Gravel Mining Co has its office
Q That is the El Dorado Water Company?
A The El Dorado Water and Deep Gravel Mining Company
Q How high is that above the ground?
A The rear of the building is about 12 feet 10 to 18. I could not tell exactly
Q Did you study Civil Engineering

in all its branches or simply land surveying

A I studied both to a certain extent, although I have done very little land surveying

Q What do you mean by both? Has Civil Engineering only got two branches to it?

A Yes sir, I have not studied Civil Engineering in all its branches in any School

Q Have you studied any branch except land surveying and plain surveying?

A Yes.

Q What? A Railroading

Q And Railroading?

A Railroading and its connecting branches

Q Well, what connecting branches? A, Bridge building masonry and so forth track laying

Q What is the so forth?

A Everything connected with railroad building, railroad construction.

Q Have surveying and railroad construction been the two branches of Civil Engineering you have studied?
A My knowledge of Civil Engineering is principally the result of practical Experience
Q Substantially?
A Substantially
Q You do not profess to have any technical knowledge?
A No sir, further than what I have
Q. (Dtz) Picked up surveying, mules and water ditches
A No sir, I have an Experience in railroading
Q How is snow estimated at Placerville as a part of the rain fall? A Snow is estimated when any fall is there as 9 inches of snow to each of water. It is estimated as a part of the rain fall
Q Well, the proportion is the greater is it not — 10 to 1 is it not? A I think not

Q When does it form?
A When does it form?
Q When does it form?
A I do not understand your question
Q What causes snow?
A I suppose it is the condition of the atmosphere
Q Nothing else, any condition of the atmosphere causes snow? A. The atmosphere and the moisture it contains
Q It is only necessary to have some moisture in the air in order to have snow.
A Very likely
Q Do you speak of the rain fall up there; do you know how much of that is consumed by evaporation and absorption?
A I do not
Q Have you any idea how much it is?
A I have not
Q Never looked into it?
A It is a subject that

I never investigated
2 It is very heavy is it not?
A Very likely
2 It must be. The high Sierras are in El Dorado County are they not?
A Pyramid Peak is in El Dorado County
2 All the highest Sierras?
Mr Belcher You mean that the County extends back to the ridge of the mountains
Mr Cadwalader. Yes, it goes over the ridge of the mountains Certainly The County extends to the summit of what is called the summit ridge — east of the ridge
2. It takes in part of Lake Tahoe, does it?
A Yes sir
2. The Sierras are very high there and the snow is very deep, very certain is it not?
A I presume it is, I have never been up there in the certain time

Q You were speaking about the Old County Road up the South Fork and about the Crossing that it caused during the rainy season. Do you know when that road was established?

A I do not

Q. Don't you know it was established by Emigrants as early as 1848?

A I have been informed that the County of Sacramento and the County of El Dorado constructed a County road through there

Q Now I will ask you about the road on the ridge, the toll road including the Ogleby grade and all those grades, were they not all constructed about the time Silver was discovered in Washoe in 1859 and 1860?

A My understanding is that the upper Ogleby grade was the first grade con-

Nesting with what were known as the Swan toll roads.

2. Well, those roads are both old are they not — those roads are both old

A Well, I suppose they are

2 Dont you know they are?

A Well, the construction must have been a long time ago

2. There have been no roads constructed in that section of the County since you were there?

A No.

2 - Nor any other part of the American Run water shed?

A There have been roads open since I was there, I suppose. I do not know

2 When were those roads chiefly used?

A Well up to 1865

2 That was the time the rail road opened?

A I believe so

2. Before that time there

Was a string of houses almost
from Shingle Springs to Placerville,
were there not?

A Well, the ruins of houses
are to be seen all a-
long the road clear to the
summit

Q That whole country is
full of abandoned buildings
is it not? A Well,
very few buildings abandoned
they are nearly burned down

Q Placerville is the prin-
cipal city is it not - the
only good town in the County

A It is the largest town
in the County

Q and the next
A Coloma and Georgetown
Georgetown is the next, I
think

Q Both Coloma and Georgetown
has less than 100 population,
have they not?

A No, both have more than
one hundred

Q You say you constructed
a map of the County?

A I did

Q Is that the one you refer to?

A Yes.

Q Has it been lithographed

A Yes, it has not

Q You were asked by Mr. Caplin about the three ditches the California Water Company. That is on what is called the Coyote divide, is it not.

A Yes.

Q And you explained what that ditch water was principally used for yesterday?

A I do not know that I did, in regard to that

Q Well, what is it principally used for?

A It is used to a considerable extent in the summer for irrigating, that I know, and how much is used for mechanical purposes and how much is used for hydraulic or other mining I can not say

Q You do not know of any hydraulic mining in the

one of that ditch, do you
A. Not at present
Q. Not within the last 5 years?
A. Yes sir, at Pilot Hill for 2 or 3 years past, or such to within about a year past they were hydraulicking there
Q. That is Eight miles from any water course there from the South Fork or the North Fork?
A. It is about at the head of what is known as Hastings Ravine
Q. That is not what I asked you. It is about 8 miles from either the South Fork or the North Fork, is it not?
A. Not about, I think
Q. And it is in a flat country is it not, or is what you ever call a park country?
A. It is right on the southern boundary of that —
Q. (Int.) That is not what I asked you: whether

it was not in a flat country
& park country?
A Well, what we comed
call a flat country up there
2 Well, what you comed
call a park country anywhere
else? A. I dont know
2 Exceedingly beautiful?
What do you say about it being
so there? A I do not
think it is worth while to
put any adjectives in the
testimony
2 You spoke of the Park
Canal Co, that is owned by
a Philadelphia Company is
it not? A I think it is
2 They bought it 2 years ago?
A Yes sir
2 The canal and Branches
about 100 miles long?
A Mr Crawford told me
about 4 or 5 years ago that
they had 200 miles of ditch
2 Do you know what Mr.
Crawford paid for that
property? A I do not
2 Do you know about what

it was?. A I do not
Q. Dont you know that
it was about $20000?.
A I only know that at one
time Mr. Crawford told me
that the property amounted up
to somewhere over $40,000. but
when that was, or the exact
figures I could not tell. It
is an incidental conversation
Q That was made of ditches
constructed before 1865?
A To a great extent
Q To a very great extent
and the same is true of the
ditch and company that
you are connected with?
A No, the greater part
of their ditches have been
constructed since I went
out there.
Q Which end?
A All the way from Placer-
ville up
Q But all the way from
Placerville down were con-
structed before 1855?
A I do not know when

the Gold Run ditch was constructed, nor when the Mexsomi Flat ditch was cleaned out and a part of it reconstructed after I went there but I had nothing to do with it.

Q You had Sevan, Reynolds, Rich and Harris' Ditches had you not, all old ditches?

A I do not know them by that name.

Q You say none of those ditches were constructed above Placerville?

A The old South Fork Ditch and the Down ditch were both constructed at an early day.

Q They are a part of the Eldorado Company?

A They are a part of the property of that Company.

Q Well, they took water from the South Fork did they not?

A The Old South Fork ditch did.

Q That is the oldest ditch in the State, is it not?

A. That is a question I cannot answer

Q That ditch runs clear water?

A It is not running any now.

Q Why?

A Some of the flumes are broken down and they have not been repaired

Mr. Catlin: They use the Old South Fork Canal?

A Yes sir

Mr. Cadwalader I am talking about the Park Canal, they are not using then any water from the El Dorado Company ditch are they?

A What ditch do you mean by the El Dorado Ditch?

Q Well, the Deep Gravel Company?

A Which one

Q Well I mean the one that has a mill on Weber Creek, above the bridge between Placerville and Diamond Springs on the grade?

A I mean which ditch do you refer to

Q I refer to the El Dorado Deep Gravel Ditch?

A Well sir, there are several ditches. You refer to the main principal canal. I do not understand what you are trying to get at

Q How many irrigating ditches are there in El Dorado County?

A As to that, I cannot say

Q It appears from the Surveyors Report of 1879 there were 30 irrigating ditches with an average length of five miles. How came you embrace a map of the County without knowing something on that subject? A. I made no pretence of putting in any of that class of ditches because they are liable to be built this year and abandoned the next.

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Q What were you making a map for? Do sell a mine? A Making a map for money

Q You do not know whether there are thirty or more irrigation ditches in El Dorado County five miles long?

A I do not know how many irrigating ditches there are in El Dorado County strictly irrigating ditches

Q Now the travel in El Dorado County before 1862 over the roads must have been 3 to 1 of what it is now, compared with now? A I presume it was, over the principal road, over the main road leading over the mountains

Q And if that travel did dislodge a great amount of sedimentary matter it must have been down here before 1872 must it not?

Ans sir, a good many of those roads were constructed prior to 1862

Q well what one?

A well the road from the Pacific Stores to the Ophir Bridge - Wells Fargo's

Q Then take down to 1866 - come down to 1866 fifteen years ago. It must have been all down before 1866 was it not?

A I could not say. I do not know the exact date

Q There has been no travel over the mountains since the Pacific railroad was completed to Reno has there? A I did not make any reference to the wash from the road proper. I spoke of the fact that slides were being produced from the cuts made by the roads

Q You spoke about the travel over the roads Well take it in that way when there were

20000 or 30000 miners mining in that County and teams by the 16 miles sections crossing the mountains, then was the time that the debris should have made its appearance in this Valley according to you notion?

A I presume it did make its appearance about that time

Q well, all that stuff would come down would it not? A the greater portion of it

Q all that was cut from the roads, cut from the ditches and cut from the hillsides by the sheep, that would all come down would it not?

A I presume it would

Q you spoke about a slide a half a mile wide and five miles long having disappeared?

A I did not speak of

any such slide as that

Q Well you spoke of a slide at Dick's, you saw the track of it, you said it went to the top of the mountain which you said was about 5 miles?

A I did not say how long I thought that one was.

Q You said it went to the top of the mountain?

A I referred to another slide altogether

Q That slide anyhow must have had whatever the mountain contained did it not?

A I presume the surface material

Q Well it all disappeared didn't it? A Oh well, there are tracks of boulders clear along the track of it now, hard, granite boulders

Q It took whatever was

in it? A I presume it did

Q But there is no dam there? A no sir.

Q There is no dam where any of those slides went into the South fork? A not that I know of

Q All that material came down? A all except the heavy boulders

Q And I believe you paid to Mr Catlin that there were no deposits at all in the Cañons proper but only in the flats? A along the line of the river

Q yes sir

A yes sir where the river was very narrow there were no deposits

Q no deposits at all?

A no cobbles or boulders.

Q the American river after it leaves this granitic country which

by the way is bare of earth, is it not — the granite country has little or no earth on it? And Earth in it?

Q The granite country at the head of the American river has little or no earth on it?

A Where the points of mountains are, they are bare of earth but there is earth everywhere clear to the summit and large masses of it too

Q Well when you get below the granite then the American river runs through a bed of solid slate does it not?

A A part of its length

Q Well that is what the geologists call it is it not? A I say a part of the way it runs through slate

Q Down to where?

A I do not know when the slate changes to granite again nor where the granite changes back to slate

Q Well it is solid slate is it not?

A Certainly the bottom is solid

Q Well the river cut its way through that slate did it not?

A I presume it did

Q What is the grade of the river from Sportsmans Hall down to the mouth?

A Is now opposite Sportsman Hall you mean?

A Yes sir What is about the grade of the river?

A I could not tell you

Q I suppose it runs from 30 to 50 feet to the mile, does it not?

A I do not know what the elevation is at Folsom

Q 100 feet say? Call it 100 feet?

A Well then there would be a fall of 2300 feet in that distance.

Q About 50 miles?

A I do not know the exact distance

Q Sportsman's hall is 10 miles East of Placerville so it not?

A 12 miles

Q That is supposed to be the snow line at Sportsman's Hall is it not?

A No.

Q Do not mean the perpetual snow line but they do have snow there when we have rain here as a general thing?

A Very often. Snow comes clear down to Placerville occasionally

Q Well I know that. But I wanted to mark the point where you would have pretty good sleighing all winter long?

A Well, you would

have to go further up to find it

Q Well, I suppose there is a snow belt there in El Dorado County of 50 miles is there not?

A From the Summit down?

Q No; from the East line of the County, down?

A I do not know from the East line of the County. I do not know but there is. It comes from Lake Valley

Q When snow lies the ground is protected from erosion? A During the time the snow is on the ground it is

Q And the snow disappears very gradually does it not?

A Sometimes it does and sometimes it does not

Q Well I know that, but as a general thing?

A It depends on the height of the snow or the

warm rains

Q well I know that, but as a general thing?

A I could not say.

Q There is no time in the year when looking from Placerville Eastward that you cannot see snow in El Dorado County is there? A yes sir

Q There is snow on those peaks all the year? A There is snow in some of those Cañons the entire year but it is not always to be seen.

Q But I mean on the peaks? A very seldom

Q How deep is the snow there now? A I do not know

Q well, that road cannot be travelled in the winter season can it?

A not unless there was a great amount of travel over it

Q Snow gets to be 30 or

40 feet deep in the road?

A I think not so deep as that except where it drifts

Q How deep? Of the deepest I have ever heard of its being in the Summit since I have been there, was up to the top of the telegraph poles

Q The great wash of that country must have occurred prior to 1866?

A No sir it is occurring all the time

Q Well I know but the great wash?

A Not necessarily

Q 100 to 1?

A It depends on how far back you go

Q Well I mean from 1849 to 1866?

A I do not think so.

Q Well what proportion would you put it at?

A I would not put any proportion

Q Perhaps you do not know anything more about it than I do. Your ditch is used for running the El Dorado Ditch and Deep Gravel Mine South west of Placerville?

A It has been

Q It is not being used now? Has that mine been shut down?

A I am not certain whether it has or not?

Q You have not heard of it being operated lately?

A No. I know that some time ago there was a small force working in the North mine

Q That is by far the largest hydraulic mine in El Dorado County is it not? A It is 2 years ago or three

Q Well it has got more water than any other?

A Well, the water is not used in the mine

at present

Q Is the mine abandoned?

A I do not know that it is abandoned

Q I believe you said there had been no hydraulic mining for several years worth mentioning on the South fork? You said that to McLaughlin, didn't you?

A I do not know of any hydraulic mining having been done on the South fork or its tributaries for the last 2 or 3 years.

Q How far is this El Dorado Deep gravel mine from the Cosumnes river? A Which mine?

Q Well I mean that mine South East of Placerville?

A The Cross Stallow mine?

Q Yes, The Cross Stallow mine A From the Cosumnes river?

Q No, South East of

Placerville, the one that
tails into Weber Creek?
A Well, I say, how far
is it from the Cosumnes
river?
Q No, from Placerville?
A Oh it is about between
a half and three quarters of
a mile
Q That tails into Weber
Creek does it not?
A yes sir
Q You say that the
pond passes down Weber
Creek from that mine.
What is the grade of Weber
Creek? A I do not know
I never ascertained
Q Did you ever survey
it? A no sir
Q You say there is no
deposit at Weber Creek
down as low as the
Coloma road crossing?
A I was at that crossing
and saw none there
Q When were you there?
A I was there about

two months ago

Q That is the lower crossing is it not — do you know where the Somerset House is? A I passed it at that time I think

Q Did you take the right or left hand road? A I came on the direct stage road from Coloma to Folsom

Q well there was no deposit in Weber Creek at the time? A None that I could see

Q How far is it from Weber Creek to the South fork, from that crossing? A About 4 or 5 miles Q. Weber Creek is a deep Canon from there down? A I do not know, I could only see from the road that is all.

Q You could tell something by the hill that you went down and the hill that you went up?

Ans. the road crosses the ridge and goes in the Valley further South so that you could not tell how it lay with reference to Weber Creek.

Q well it is about half a mile down that hill is it not from the Somerset House to the bridge? A That I could not say

Q Well it is about half a mile down that hill is it not, from the Somerset House to the bridge?
A I could not say.
Q And half a mile up the other side
A I never was over the road but once
Q When was that
A About two months ago. It might have been three months ago.
Q The business of Eldorado County is fruit raising principaley?
A No.
Mr Catlin I think this is mr cross examination, and object to it upon that ground=
=Objection Sustained=
Mr Cadwalader You speak about your ditches being the Cause of Slides. You refer to the ditches of the Eldorado Water and deep Gravel Company do you not?
A In referring to the ditches

up the South Fork I did
Q You turn your water over in winter do you not, when a storm is about to occur?
A Not if they can help it
Q Well as a general thing?
A No. The water is never turned over unless the storm is so severe as to compel them to do it
Q Then you run nearly all winter do you?
A Last winter they ran the entire winter without interruption.
Q And you are not troubled with any slides or breaks?
A Not last winter
Q Although you run through the mountains for 70 or 80 miles I suppose?
A No. About 24 miles — 24½ miles
Q This last winter was a remarkably hard winter in the mountains was it not?
A No it was a very good winter.

Q What was the rain fall?
A I could not tell you in the mountains.
Q You have given it for Placerville have you not?
A I can ascertain what it was for Placerville.
Q You have done that already it was 48¼ inches. There was an unusually heavy rain fall last winter was there not?
A The previous winter was sixty two sixty hundreths inches.
Mr Cullin How much was last winter?
A 48.04 Inches.
Mr Codvalader Well it was an unusually heavy winter was it not?
A It was not. It was a particularly mild Winter in the mountains.
Q You do not pretend to say that the percentage of soil washed down is great, when you can maintain a 3 4 mile ditch through those

Mountains during such a winter as 80-81?
A The ditch crosses two large tributaries; Alder Creek and Plum Creek. It is a very common thing that a slide or a break occurs above Plum Creek, while there is plenty of water in Plum Creek to run the ditch until the break is repaired occasionally there is plenty of water in Ogilvey Canyon to do the same thing from that point up and from Alder Creek up
Q A few minutes ago you said you had no breaks at all on your ditch last winter?
A I did not.
Q Do you know anything about it?
A I do not know. I know the water ran all winter That is all I know about it
Q But if there had been any slides along that 34

Miles you would have been apt to know something about it would you not?
A I might and I might not
Q Well it was your business to know something about it was it not?
A No. I was not in charge of the property and have never been.
Q You knew water ran all winter did you not?
A I knew that
Q Those ditches run along the sides of the mountains do they not?
A Not always.
Q Well as a general thing?
A They very often go on a ridge and follow the divide down. Where they can they do that
Q As a general thing they run along the sides of the mountain do they not. Say about 5/6 of the way?
A That portion of the ditch runs along the side

of the mountains: the Main Trunk Canal.
Q Well say 9/10 of the way?
A The entire length of the main trunk Canal is along the side of the mountain from the Fourteen Mile House down to Smiths Flat. It is down the ridge.
Q How far is that?
A That is about 15 miles. No let me see. wait a moment
Q About 9/10 of it is on the mountain side is it not; of all the ditches in Eldorado County?
A no I do not think so. Not those main ditches.
Q Well what proportion?
A Of that ditch about probably 2/3 as a rough guess, without referring to figures.
Q The Eldorado Deep Companies ditch carries about twice as much water as the Bank Company and the California Company?

A Yes. It is a very much larger ditch than either of them.

Q You do not know the value of that property do you?

A I do not know what the Company value is or

Q But I mean the market value of the property?

A I do not

Q So you know the value of all the property in Eldorado County?

A I could tell what the assessment was two years ago

Q Well what was the assessment?

A I think it was about three millions.

Q Of all the property?

A I think it was about three millions.

Q That includes the whole of the County does it not from the the Middle Fork to the Cosumnes?

A That would include the

entire County.
Q It includes all the personal property?
A Everything.
Mr Collin That is it includes the value.?
A The assessed Value is what I refer to
Mr Cadwalader What is the value of the personal property in Elavado County?
A I could not say. I have no data.
Q There are over 100.000 sheep in the County are there not?
A That I do not Know. I think not.
Q And over 20 000 Cattle
A I do not Know whether I have got the number here or not (Examining notes) I have not got the number
Q And the finest timber belt in the State?
A There is some very fine Timber
Q Well unused timber,

timber, on both divides?
A That is what I refer to.
Q About 50 miles by 30 miles?
A No I do not think it is as great as that. I have made an estimate of the timber acreage of timber but I do not remember what it was. I did not charge my mind with it
Q I will ask you whether all the old diggings in Eldorado were not what were called dry diggings
A I do not know what you mean by dry diggings. I never mined
Q Well diggings on the hill tops seven or eight miles from the water courses the main water courses.
Well if you do not know I will withdraw that question. When you speak of the ancient River beds do you locate any of

them on the Georgetown
divide?
A I am not very familiar
with the mines on the
Georgetown divide; that is
North of Georgetown. I know
of but one from personal
knowledge - two from per-
sonal knowledge. One is
what is Called Tiptop Hill
about 8 miles east of
Georgetown, and the other
is at Pilot Hill.
Q Those are two mines
are they?
A They are two mines, the
property of the California
water and mining Company
Q How much have they been
developed
A Well I did not make
any examination of either of
them particularly.
Q Not enough to speak
intelligently ~~in~~ Regard to
them?
A No. I know they have
both been worked to a

Certain extent, but how
far they extend or anything
of that kind I cannot say
Q The gravel there is red
is it not?
A No.
Q Now come down on the
divide between the South
Fork and the Cosumnes.
the ridge between the
South Fork and the Cosumnes
where do you locate the
ancient River Channels
in that section of country
A There is one main
Channel commencing at Coon
Hollow and following around
the way of Smiths Flat
and Reservoir Hill to White
Rock
Q Commencing where?
A Coon Hollow
Q And going from Coon
Hollow where?
A To White Rock
Q By what route
A It runs along what is
Called Cedar Hill, Spanish

Hill, Texas Hill and
around by Smiths Flat.
Q Where is White Rock?
A White Rock is on a point
overlooking the South Fork
of the River, about four
miles North, a little east
of North of Placerville.
Q What is the general
direction of this?
A Its general direction is
very nearly the arc of a
Circle.
Q You say it starts at
Coon Hollow.?
A Yes.
Q And runs east of Pla-
Cerville?
A Yes.
Q How far east of Placerville
A It runs up to Smiths Flat
Q That is the upper end
of Placerville is it not?
A About 3½ miles above
Placerville.
Q And then Runs in the
direction of the South Fork?
A Then it swings around

to a direction west of North
Q And Comes out about
where? Coloma?
A No. It dont come any-
where near Coloma. It is on
the east side of Placerville
and Coloma is west and
North of Placerville.
Q Does this Channel lie below
or above the present water
Courses?
A Very much above
Q What kind of Material
has it got in it?
A It has got hard Cemented
gravel in the bottom over-
laid by a stratum of lava
and then there are alter-
ating Stratta of Gravel and
land Clear to the top of
the bank. The top is soil
of varying depth.
Q What is the Color of the
gravel?
A Blue.
Q What is it at the top, as
you go towards the surface of
the ground?

A There is very little difference in the color of the gravel. In spots you find it yellow. Kind of yellow

Q How long do you make this?

A About 12 miles of the Channel.

Q And you say how much of that has been worked

A At the Town Hallow end about a quarter of a mile has been worked off.

Q What Company did that work there?

A The work Commenced at a very early day. Town Hallow I am informed was at one time a very large town, larger than Placerville or fully as large. Subsequently the ground gradually fell into the hands of a few men. After the Construction of the Old South Fork ditch hydraulic mining Commenced there and Continued down to about the present time.

Q It Ceased when?
A I do not Know that it has Ceased now.
Q But it has been gradually growing less?
A The heaviest of the mining probably that ever was done there was by the Eldorado Water and Deep Gravel Mining Company during the years 77 and 78.
Q And since then there has been no mining there to speak of?
A It gradually dropped away. They have used a little water there from time to time
Q Then there has been one quarter of this 12 miles worked?
Mr Belcher Quarter of a mile?
The Witness Quarter of a mile.

Mr Ledwidge That is all you know of having been worked?
A- Well the sides of the channel have been worked at different places all the way up. There has been drift gravel mining going on at different points along the channel
2- Oh! There is drift mining. How much do they drift out?
A- I could not say the exact quantity; I do not know. A very small percent of the whole.
2- Where are they drifting there? A- They are drifting at a number of points. I mean by the name of Ames is drifting on the Weber side of the channel
2- How much of this eleven and 3/4 miles has been drifted?
A- I do not know. A very small percent of it.
2- Hardly appreciable?
A- Well it is appreciable to be sure. But it is so small a percent that it is dif-

hard to estimate it unless a man could make actual surveys of the ground.

2- Has there been any development of any part of this claim and 3/4 miles to amount to anything?

A- Yes. There has been very considerable development The Spring Hill mine has been running ever since I went to Placerville, and I think it was sometime before that.

2- Where is that?

A- That is up Cedar Ravine

2- How far is that from Placerville?

A- Right on the edge of the town. The Spanish Hill Mine at what is called Texas Hill has been opened up and has now commenced work, has a very fine mill, hoisting works, etc. The Lion Mine, formerly known as the Robinson Mine, has been working steadily

nearly all the time since 1871
2- They are working by
drifts and with stamps
are they? A- Yes
2- According to your
notion, all that channel
could be taken out, worked
out, without any of it getting
into the South Fork?
A- No. Not if they run it
through stamp-mills.
2- Will no part of it is within
six miles of the river
is it not?
A- There is no part of it
within 12 miles of the river
2- You stated I believe that
all the old material, all
the mining material, of all
the mining in Placer County
was in place?
A- I did not say so.
2- Will is not that so? I mean
El Dorado County, all this
water-shed. Is not that so?
A- I said that a very large
percent of it was.
2- A great many of those

ravines, such as Manytown Creek have been worked over three or four times?

A- I presume Manytown Creek has been worked over every year almost.

Q- All those ravines that were mined were rocky ravines were they not?

A- Yes.

Q- And now in those old workings they take and dam up the Creeks and turn flickers in when they can get them, to make soil do they not?

A- They do whenever they have ground to make it on.

Q- But the bottom is this old washed over material is it not, material that has been washed over 3 or four times? A- To some extent it is.

Q- Well on Manytown Creek?

A- A portion of it.

Q- Well the greater portion of it? A- No. It is of different depths. Some

places there is hardly any and some places there is several feet.

Q- There is a place on Nanny-town Creek where you spoke of the soil having been made out of slickens? A- Yes.

Q- Now the sub-stratum of this was the old workings? A- Where it was not bedrock.

Q- What? A- Where it was not bedrock. Whatever material was on the surface was that.

Q- It was either the old working, the old washed material, or the bedrock? A- Yes.

Q- Placerville is on a very sharp ravine is it not? A- Yes. At that point it is quite sharp.

Q- Well it is sharp all the way down from the top to the bottom is it not? A- No, it is not. It spreads out at Middletown to quite a flat on the north

side of the Creek.
2- Your idea was that only ten percent of the mining in El Dorado County had ever been done by hydraulicking?
A- I think not more than ten percent.
2- And you say those cañons on the Georgetown divide that have ten feet of tailings in them, the tailings will never move from?
A- I spoke of Irish Creek as being filled with tailings from the old fashioned mining. The stream of water flowing down there is very small and I do not think it will ever move, at least not in any reasonable time
2- What is it you call lava?
A- There is black lava and white lava or lava-ash.
2- Do you speak of chalk when you speak of white?
A- I did not speak of chalk. I said white lava or lava ash
2- Does that look like chalk?

A- It looks like chalk. It is not chalk.
Q- You spoke of so stamps running on cement gravel, where are they?
A- The Ames mine has five, the Spring Hill mine has ten the Spanish Hill mine has ten
Q- Where are they, how far from the South Fork? A- The Ames mine is on the Weber Creek side of the main channel.
Q- Are any of them within ten miles of the South Fork; any of these stamp cement mills?
A- Yes. The Oak Ranch Mine is probably about five miles below South Fork. The White Rock mine is within about three miles, or the White Rock Mill.
Q- That is the nearest is it?
A- That is the nearest.
Q- Where are these forty stamps that you spoke of engaged in working quartz? Are they within five miles of the American River?

A There are 30 stamps at Placerville, and on the north side I know the Chapped Mine has ten stamps and the Gopher Mine has ten and is putting in ten more There are other stamp mills there but how many there are I do not know. The distance to the American River from the Chapped Mine is probably three-quarters of a mile. From the Gopher mine it is probably two miles or three. The Placerville mines are about 12 miles distant. Eleven or twelve.

Q- None of the material from those mines gets into the River?

A- What is that?

Q- None of the material from those quartz mills gets into the River?

A- I think the greater part of it does go into the River It is very light material

when it leaves the stamps it travels right along with the water.

Q- because sand is it not?
A- A kind of sand - broken; the rocks are broken up
Q- You stated that the fill at Coloma was from 8 to 20 feet now? A- Yes.
Q- The highest point is 20 feet is it? A- About 20 feet I should judge.
Q- Do you know what the fill was there in 1849?
A- I do not.
Q- Is that old sawmill there? A- No.
Q- No signs of it?
A- No signs of it. Nobody knows where it stood unless it is Marshall. The site was pointed out to me by a gentleman there as near as he could tell.
Q- You say the flood of 1881 cleared Weber Creek of all its sand? A- I did not
Q- Do you say the sands

remain in Weber Creek?
A- A portion of them do.
Wherever boulders were deposited, the sand as it floats along the bottom drops into the interstices of the boulders and remains there and becomes a very hard cemented material; just as hard as it was in the original bed here.
Q- You have never seen a boulder moved by water have you? A- Yes I have known boulders to have been moved by water
Q- How far did they go?
A- I do not know I did not follow them
Q- Do you know anything about what is called the Transporting process of water?
A- I never paid any particular attention it, never studied it at all except in observing the action of water in the big Canal while it was in process

of construction.
Q- Where did you see these boulders in motion?
A- I saw them in the Upper South Fork, or heard them rattle in high water.
Q- Heard them cracking did you not? A- Rolling along the smooth bedrock.
Q- At what velocity were they traveling?
A- That I could not say.
Q- Could not you form some idea? A- No.
Q- Describe the noise they make?
A- Simply a grinding noise- that is all.
Q- Like how many mills?
A- Well I do not know about how many mills. I never estimated it in that way.
Q- Could you see them? A- No.
Q- You could hear them could you? A- Simply hear them.
Q- What was the stage of the water? A- Very high.
Q- What velocity did you suppose they were moving

at? A- That I could not say.
Q- What grade were they mining on?
A- About 90 feet to the mile
Q- How high was the water?
A- The water was probably 7 or 8 feet deep.
Q- Seven or Eight feet deep? A- Yes
Q- And running on a 90 foot grade?
A- Yes.
Q- And you could hear the boulders grinding along? A- Yes
Q- How wide was the stream?
A- About 100 feet wide.
Q- That is a very common phenomena on all those mining streams is it not: the grinding of the boulders? A- In very high water it is a very common thing to hear a boulder rolling down in that way until it arrives at some place where it finds a lodgment, where it stops.

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Q. Well it depends on the force of the water? Have you any idea how fast these boulders could travel if the water had been 20 feet deep? A Nosir, I never made any estimate

Q What was the size of the boulders? A I do not know probably not very large

Q How wide were they travelling in the bed of the stream

Mr. Catlin I object to that question as being unintelligible

Q They were grinding on the bedrock were they?

A. Well, sir, standing on the bridge crossing the river at Camp Tam, as we call it, at the mouth of Alden Creek we would occasionally hear a boulder rolling down the bed of the stream and that is all there was of it and all you could hear. I know that ought below

9293 legs than 100 yards below

There was a heavy mass of cobbles not more than 5 or 6 inches in diameter. That land there and are laying there yet for all I know and they have been there since I first saw the stream. These boulders either stopped above or rolled over them without moving them. and you will find that occurring at various points below. At Mr Moores there is a stretch of a mile or a mile and a half and the same cobbles are laying there now the same as when I first saw them

Q Boulders resist more in water than they do in air, do they not?

A I do not know, I suppose there is a certain amount of friction, I never calculated how much there was. I do not pretend to express any opinion upon that subject

2. As a Civil Engineer you
would think there would be
more resistance from a boulder
in water, there would be a
greater resistance to force
used in the water than if
it had been used on land
as well. I do not know
2 You take a plane surface
a rock, and apply a given
force to it in the water
& gather in the air and then
put it in the water and
apply the same force in
the water and the resistance
it would offer would be
greater in the water than
on the land
A It would be the dif-
ference between the friction
on the rock, and the friction
in the air - that would be
difference.
2 That would be all?
A Yes,
2. That you learned at the
Lewisburg Academy when you
were there studying?

S 9295

A. I learned it as a matter of common sense that is where I learned it

Q. You describe the water as being 7 or 8 feet deep when you heard the boat moving? What was the velocity of the current? A. I do not know I know it had a very great velocity

Q What is the difference between high and low water mark there?

A At that point?

Q Yes? A Well, the difference the ordinary difference is not more than 5 or 6 feet

Q Well, I do not speak of the ordinary difference? A I have seen the stream there when I should think it was 10 feet deep. Never but once

Q You say you worked the Red Run mine. Were you ever there but once?

A Never

2 You went there with Mr. Price did you not?
A I did
2 What time did you get to the mine and what time did you leave? A I do not know what time we got there, about the middle of the forenoon I think perhaps later.
2 How many months were you in the mine?
A I do not know
2 and then you went down Cairn Creek did you?
A I did
2 and from there you went to Reesbridge? A Yes.
2 You say you found very heavy deposits at the mouth of Cairn Creek, did you?
A I did not
2 Did you find any deposits there? A A very small deposit
2 Where did you find any considerable deposit?
A Well, the deposit seemed

to increase all the way down to what is known as Forks Bar. Then there seemed to be a gradual decrease down to Rices Bridge as near as I could tell.

Q. You did not say yesterday that you found a very heavy deposit from the mouth of Cain Creek down?

A I did not say that I found a very heavy deposit at the mouth of Cain Creek.

Q Did you find a very heavy deposit at the head of Pickings Bar? A. There is a considerable deposit, there I do not know how much

Q You mean at the head or the foot of the bar?

A At the point they call Pickings Bar, that is all I know about it

Q You were on those bars were you? A Yes

Q How long were you passing from the mouth of Cain Creek down to Rices Bridge?

A Well, I presume we were three hours

Q What time did you reach Rees bridge? A I could not say

Q Where did you stay that night? A At Colfax

Q You went up to Colfax? A Yes.

Q That is the only time you were ever there?

A The only time I was ever there

Q You say you looked at the material in the Gold Run pit?

A I did as far as time could permit

Q The time did not permit of much of an examination did it? A. Not a very extensive one.

Q One that is worth anything?

A. I think not, as against one who had made a very careful and extensive examination of it

Q You saw that gravel from the top down, did you not?

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A Yes.

Q. It is gravel from the tree roots down, is it not?

A No sir.

Q Where does the gravel commence? A. It commences probably 75 feet below the general level of the country.

Q You say you do not strike the gravel until you are 75 feet from the surface?

A I do not.

Q Where do you strike the gravel then? A. Strike it at the bed-rock.

Q You do not know whether it is cemented gravel or not, do you?

A Well, it looks like cemented gravel

Q You could not tell at a point 90 feet above you whether it was gravel that would yield to the action of water or not?

A Well, it would look as if it would not yield to the action

of water.

Q Just look at the gravel there in boxes #1 and #2 produced here I believe by Mr Gmed. Look there and see whether you think you saw any of that stuff there?

A Well, I do not know. At the time I saw the mine there did not seem to be any loose material in it. It seemed to be that the loose material had been all carried off

The Court Not in that Conglomerate there

Mr. Catlin The boxes are not marked 1 and 2, the theremen in the boxes are numbered 2 and 3

Mr Cadwalader They are 2 and 3. I stand then corrected. What do you have to say about that?

A There might have been that kind of material in there but a few as my observation goes I saw only the face of the mine

and it appeared to have been washed clean.

2. Will that stuff wash that is in the boxes #2 and 3?

A It will wash through a flume yes

2 What? A It will wash through a flume, yes.

2 Will it wash with water without the use of powder?

A. If it was pulverized like that it certainly would.

2. Look at it. That is the way it was brought here by Mr. Powell? A I say that would wash by water without the use of water, but this [indicating] would not

2 Tell us whether this gravel on the bank that you saw — what do you say about that?

A Well, the principal part of the bank — there might be such material as that there, but I did not see it though. The upper 6 feet of the bank —

2 [Interp.] I will ask you whether that material does

not compose the upper 60 feet
A I do not know.
Q I will ask you whether it does not compose the upper 70 feet?
A I do not know
Q. I will ask you whether that does not compose the upper 80 feet?
A I do not know that
Q I will ask you whether that does not compose the upper 90 feet?
A Possibly it does
Q I will ask you whether or not the bank is not divided into two parts - material the same as in Boxes 2 and 3 and the blue material 4?
A The appearance of the bank so far as my observation was it simply this: that the bottom seemed to very hard and more closely cemented than it was further up - what it might be, what particular kind it might be when broken up like that, I cannot

not say, because I did not see it

Q You have never worked any of that? A No sir.

Q You have never been a miner, I believe? A No sir

Q What you made you state that there was only 9 per cent of that hard rock?

A I think I said that 90 per cent of it was coarse material

Q. No sir you said it was rock.

Mr Belcher No sir, he said it was coarse material the language he uses now.

Mr. Catlin He said rock, gravel and cobbles.

Mr. Cadwalader All Earth is rock

Mr. Belcher And all flesh is grass.

Mr Cadwalader You do not know Mr. Witness do you? You did not stop long Enough to make an intelligent —

A (Int'g) I did not stop long Enough to make a very

Careful Examination.
Q Has any one in the Court Room told you that that way about the proportion?
A No sir
Q. I was in hopes you had some information on that subject. You said you Estimated the discharge through the drainage canal at Sacramento?
A I did.
Q How did you measure it?
A Mr Bassett, had charge of the measurement and I accompanied him
Q He made the measurement and you did not?
A I was present and said the measurement made?
Q Do you know how he made it? A. I do.
Q How? A He made it by placing a dam across the drainage Canal below J. Street, and that dam consisted of a plank, the upper part of which had a notch cut down about 3 inches

a depth. I do not know but 6 inches in depth, and about 3 feet in length. Even with the bottom of that notch, a stick was driven into the ground, and the record was taken from a scale put on a stick. As the water rested on the scale the observation was taken Every 15 minutes

Q What observations?

A The depth of the water running over the weir.

Q How was the water measured. How was the current measured?

A. It was measured by the depth of water running over the weir

Q That is the way you got at the current was it?

A Yes. That is the way we got at the quantity.

Q And in no other way?

A In no other way, no.

Q You did not have any overflow there with you, did you?

A. I believe

ave had a small one
2 You were asked about Sutter Lake? Do you know that all the ground on 3 sides of that Lake has been hauled in with Carts?
A I do not know anything about it. I judge that the Embankment on the Railroad side had been made probably in that way, but I do not know anything about it
2 You know where the railroad shops are, and the railroad depot do you not know that it is filled up there? A I presume it is, I judge so from its appearance.
2 You know that, that very heavy foundation there have been made? A Yes.
2. With the exception of the ground of the railroad depot and you know that the south and west side have been filled in for 2 blocks?
A The west side, what do

you call the west side
2 Between the river and 3rd Street?
A It has that appearance, I do not know anything about.
2 Do you know that the South side of the lake has been filled up in the last two years from 2nd Street to 5th?
A I do not know anything about the fill, because I never saw any of it done, and I do not know anything about it
2 You can see from the tracks that the filling was new, can't you not?
A Not on that side I did not observe that it was new
2. That has been filled in in 2 years, and it is new there is it not?
A I do not know.
2. The filling extends some distance in the rear of the houses, north of the houses
A Possibly it does. I do not know
2 Well, that amount of fill

owned prevent slope owned
it not? A. It owned
depend on how it was put
in.

Q Say that it was put in
by carts and cars and made
strong and used for roads—
City roads? A. A good
strong bank ought not to
permit any slope or at
least very little.

Q It owned not be possible
to get any slope through the
north side of the lake, oc-
cupied by the railroad shops
or the railroad track?

Mr Belcher We will admit
that there is no slope there
at all.

A I do not think there
owned. I do not think that
any slope owned go through
there at all.

Q Nor on either side?

A I do not know any-
thing about the other sides

Q It is about as hard as you
can pack earth by buying

it is worth cents?

A No, a scraper bank is better than a cart bank.

2 That is the hardest way that earth can be packed is it not? A. I say that a scraper bank is better than a cart bank, and a cart bank is next.

2 Where it has been used for any purpose that makes it as compact as it can be does it not?

A I presume so

Mr. Catlin We admit that they are perfectly sound if that is what you desire to prove.

Mr Cadwalader You speak about that being garbage run into that lake?

A I did I observed a quantity of garbage scattered along the shore of that lake

2. They were lying along the bank of the lake?

A Along the bank. That is

all I speak of. What way in the bottom of the Lake I do not know anything about

Mr. Catlin You mean on the bank close to the water Edge?

A Yes sir laying on the bank

Mr Chadwalader You do not know whether that is allowed by the ordinance of the City, or not?

A I do not know. I presume it would not be

2. You are speaking of the rain falls at Thunder Springs?

A Yes.

2 All the rainfall there goes into the Commerce does it not?

A Thunder Springs is almost entirely on the divide. The streams start right there and run both ways

Q Well but the greater part of it? A I say it starts at Shingle Springs. Shingle Springs is a little place not larger than one of the blocks of this City.

Q The main water runs into the Cosumnes river? A It runs one way as well as the other.

Q What ravine does it go down to get into the watershed? A I think it is called Tennessee Creek. I am not positive.

Q You are not positive about that? A About the name of the stream, no.

Q There is no ravine there at all is there? A There is a ravine on each side of the town North and South.

Q On which side of the railroad? A One on each side.

Q Which side of the railroad is the town on?

A Most of it is on the South side, most of the buildings

Q There is a hill on the North side of the Rail road is there not?

A Not right there.

Q Not at Shingle Springs?

A There is not on this side. There is a hill.

Q When you leave Shingle Springs to go towards Saeramento you go up a hill?

A Yes that is West of the town

Q As you go towards the Cosumnes you go down a ravine? A Yes and as you go towards the South fork you go down to a ravine

Q In what direction?

A North.

Testimony
of
John A. Cunningham

Called for deft. Sworn.

Mr Catlin Q. Mr Cunningham you are the Engineer of the City Water Works are you not?

A Yes.

Q Whether you have charge of the pumping at the Water Works of the City of Sacramento?

A Yes.

Q You are the chief person in charge? A Yes

Q You are in practical charge of it? A I am the Chief Engineer

Q Are you in personal attendance upon it?

A Yes

Q Will you state what amount of water was pumped between 12 o'clock noon on the 21 st day of December and 22 nd day of December last at noon?

A About 1,309,000

1314

There ought to be about 5 per cent deducted from that for slipage

Q State, Mr Cunningham, what the average annual pumping in the City has been say for the last four or five years?

A Well I could not get at that very accurately without making a good deal of work

Q You gave me a statement which you made some time ago. You may refer to that to assist your memory if you choose

A It is approximately correct but not absolutely correct. I could make all the figures

Q I wanted approximately as near as you can tell, on average.

A For the year 1878-1879 1880 and 1881 about 617 000 000 as the average

Q Annually? A Annually

93/5

Q That is after making the allowance for slippage?

A Yes.

Q Will you state about what the weekly average is during the summer season when irrigation is pursued in the City, about how much a week- how many gallons?

A Well from about 18 000 000 to 20 000 000 a week

Q Does it not run higher, than that?

A Some weeks it runs higher but it will not average higher than that

Q When the most is used during the Summer time I will ask you whether it does not run up to 24 000 000?

A It has occasionally

Q State the highest it runs during the Summer months? A 24 000 000 is the highest. That is very occasionally so.

Q That is so much a week. Now during the Summer months, what is the weekly, the general weekly amount?

A From 8,000,000 to 9,000,000

Cross Examination of John A. Cunningham

Mr. Hall Q This water is pumped into the reservoirs of the water works here in the City - what is it pumped into?

A Into the mains the most of it. Occasionally in the night we pumped a little into the tank. We have a tank on the building where the Police Office is

Q How large is that tank?

A 240,000

Q But ordinarily it is pumped directly into the main pipe? Ages

Q What is that pipe

composed of? What is it made of? A Iron wrought iron and Cast iron

Q And that goes from that into the several smaller branches of pipes?

A yes.

Q And they conduct the water to the houses?

A yes

Q How long have you been Chief Engineer of the Water Works?

A six years next Spring

Q Your estimate extends only for the time that you have been Chief Engineer?

A Not entirely back for six years only for four years here

Q Prior to that time have you any figures by which you can tell the amount that came into the City?

A I have no figures only my own that is for the six years.

Q None only your own?

A No sir

Q I mean the two years before these four years?

A I have the figures

Q What were they then?

A I could not tell you there would be too much work to get them out.

Q Too much work?

A Yes

Q Was it larger or smaller than the last four years?

A Smaller

Q Smaller than in the last four years? A Yes.

Testimony of L. F. Bassett

Re-Called by deft.

McCallin Q You are the City Surveyor I believe?

A yes.

Q How long have you been City Surveyor?

A It is in the neighborhood of three years and a half

Q State you, since you have been City Surveyor had much to do with the City sewers? their location, repair etc?

A All the work that has been done while I have been City Surveyor has been done principally under my direction

Q State on what streets the main sewers are and in what direction they run and how far they extend to the East - the Eastern part of the City?

A The main outlet sewer is on 6th Street running from 6th to M. Then there is a branch each way from 6th and R Streets, one running ~~f~~ to the East and the other to the West and connecting with the sub-mains

Q Following up R to the East and down R to the West? Ayes and connecting with the sub mains The first one in the West comes through in the Alley between Front and Second Street.

Q The first what?

A The first sewer to the West. It runs down the alley between Front and 2nd Streets

Q From the North to the South? Ayes heading at I Street and the foot of it is at R. Street

Q It turns at R. Street and goes down 6th?

Ayes. The next one is at 3rd Street heading at I Street

Q Where does that extend to?

A It extends to R Street also. The next on 5th Street heads at I Street and terminates at R. Street The next one is on 7th Street heading I believe - I am not positive about the head of that sewer because I do not know much about it. I think I have seen it open as far as E. Street, and the next one is on 9th Street. I am sure that the termination of the 7th Street Sewer is at E. Street

Q It commences at E Street and ends at R Street?

Ayes. The next is on 9th Street and that is the one I am uncertain about. That, I think runs up to E. Street. I do not know whether it runs any further or not. That terminates at

A. The next is on 13th Street and the head of that is at C. Street and terminates at R. Street. Those are all the sewers all the main sewers that there are within the City limits.

Q There is none on 11th?

A None on 11th Street, no sir.

Q State what sewers connect if any with those sewers running down those odd numbered Streets that you have mentioned? The side sewers?

A Well there are sewers passing through the alleys at right angles to the numbered Streets of the City in different portions of the City. This City is not sewered. The most thickly settled part of the City is sewered, not all, but the principal part of it is sewered.

Q Those are short sewers running —

Alley 7 East and West
Q At right angles to the main sewers and emptying into them?
Ayes emptying into the main sewers
Q What is the grade of those sewers commencing with the alley between Front and Second and so on up to Thirteenth Street - what is the grade of those sewers until they meet the main sewers at R Street? A The grade of the sewer in the alley between Front and 2nd Street I do not know exactly what it is. The 3rd Street sewer had a fall there of 8 inches in 420 feet. The 5th Street sewer has a fall of 6 inches in a block of 420 feet
Q 6 inches in each 420 feet? Ayes. The 7th Street sewer has a fall

of 8 inches in the same distance. The 9th Street sewer I believe has a fall of 6 inches. I will not speak positively of that. From 6 to 8. I think it is 6. The 13th Street sewer has a fall of 5 inches in 420 feet

Q Each of these figures 5 inches and 6 and 7 and 8 as you give them refer to each 420 feet?

A Yes.

Q That is all the way down to where they join the main sewer passing the railroad at R St?

A Yes

Q What grades have the alley sewers or these side sewers that you say empty into the main sewers?

A The grades of the alley sewers vary. At the time they were put in (I speak of the ones on

that I was concerned in) those put in since I have been in office the grades of them vary from 6 inches in a block of 400 feet to 3 feet in a block of 400 feet

Q What sewers are those the side sewers?

Ans. They were given in every instance all the fall that could be given them according to circumstances

Q Of what are those main sewers constructed? of what material?

A They are constructed of the iron stone pipe that is made of potters clay and called iron stone ~~or~~ vitrified sewer pipe, of brick and wood and some of cement pipe

Q The sewers running North and South upon the odd numbered sheets, what are they constructed of?

A The other part of the

distance these sewers are built of pipe, through the high grade, generally from D. St. to L. Street and sometimes ending at the alley between K and L they are constructed of brick. They are large brick sewers 3 feet by 5 in an egg shaped form

Q Are these brick sewers made water tight?

A No sir

Q Describe how they are constructed on the bottom

A well the bottom or inners of the sewer is made without any mortar

Q Are they open-jointed brick? A They are open-jointed yes

Q How are those wooden sewers generally as to the bottom of them - how are they constructed?

A well most of them have no bottom except the cross pieces that are

used to hold the bottom together. Some few have a bottom in them I believe.

Q They are constructed with three sides of board and the bottom is natural earth? A Yes.

Q State whether those wooden sewers whether the wooden sewers are constructed for the side sewers generally?

A Well previous to some time ago all the main sewers South of L Street were wooden sewers. Since that time they have all been replaced with pipe sewers on the main streets except on 13th Street. Those that are remaining of the wooden sewers are in the alleys except there is an old wooden sewer on 8th Street which is not very much used

Q Had old wooden sewers

On 8th Street is the only sewer as I understand that runs North and South that is on an even numbered street?

A This the only one

Q Is there any sewer branch in the City from the City into the Sacramento River?

A No sir I saw none at all. The sewerage from the water works and from the City jail, the police quarters discharge into the Sacramento River aside from that I do not know of any.

Q With that exception you know of no drainage into the Sacramento River?

A I know of none other.

Q Has there ever been any to your knowledge?

A No sir there has not.

Q Have you ever found any evidences of any old sewers, sewers that are

drained into the Sacramento river? A none whatever.

A What is the grade of the main sewer from R. Street to Y – the main sewer after receiving all the sewage?

A I believe it is 2½ inches to a block of 400 feet.

Q That is 2½ inches to each 400 feet

Q Stow many blocks?

A It would be 7 blocks from R. to Y.

Q That would be 17½ inches in seven blocks? Stow does this sewer pass Y. Street?

A There is a levee on Y Street and the sewer under this levee is a brick sewer

9330

Q Now how does it pass
Y street?
A There is a levee on Y
Street and the Sewer under
this levee is a brick Sewer,
Q It passes under the
levee?
A In a brick Sewer
Q How far does it pass
in a brick Sewer after
passing Y street
A I think the length of that
Sewer from the beginning to
the end of it is about
200 feet perhaps 275
Q And into what does it
terminate then
A It then discharges into
what we call the drainage
Canal
Q Is there an open ditch
A that is an open ditch
Yes sir
Q State how much of it
is open ditch between R
Street and Y — seven
blocks these you say
A There are three block

open ditch between K and Y.

Q Three blocks of that is open ditch and the other four are a Covered Sewer?

A The other four is a large Cement pipe.

Q Now state whether you had anything to do with the location or Construction of the drainage Canal from Y Street down?

A I have Charge of the work that has been done, that is I have done the engineering work, the work that has been done in the last three years or three years and half

Q Under what authority has that work such as has been done been performed

A I have my authority from the board of trustees of the City of Sacramento?

9332 Q Do you know under what

authority they acted
A Under Some Legislative
act I believe, I believe
the act of 1878, I do not
Know the Number of the
act or anything of that
Kind
Q I will ask you whether
from the point Just below
R Street where it first
passes from the Covered Sewer
into an Open ditch, State
whether or not it is an
Open ditch from that point
as far as it goes
A It is an Open ditch
all the way except a
Culvert under the River Side
Road.
Q Except where it may
pass under public highways
A Yes sir
Q What is the grade of
this drainage Canal from
G Street to the point
where it crosses the River
Side Road
A The grade is the Same

as the last section I described that is two inches and a half to 400 feet
Q The same grade two and a half inches to 400 feet, what is that distance from G Street to the River Side Road, to the point where it crosses the River Side Road
A I believe it is about 2800 feet.
Q I will state that if in answering questions you have occasion to refer to your notes you are at liberty to do so?
A When my memory fails to tell me I will do so.
Q 2800 feet from thence to the River side road to on a grade of two and a half inches to each 100 feet?
Mr Hart I object to Counsel stating to the witness - let the witness state that
Mr Collin the witness has already stated it - what

was your statement with
regard to that?
A The grade is two and
a half inches.
Q To how much?
A To the distance of two feet
Mr Hart In a distance of
how much - 2½ inches to
four hundred feet, that is
from R to Y Street
A Yes sir and also from
Y Street down to the River
Side Road
Mr Catlin Now from a
point where it crosses
the Riverside Road to Sutter-
ville what is the grade?
A What section is that?
Q From the point where
it crosses the Riverside
road to the point at Sutter
ville?
A The grade changes there
a little, I believe it is not
quite so great, it is about
an inch and a quarter to
two feet (referring) that is
what it is an inch and a

Quarter.
Q An inch and a quarter to
each two feet, about what
rate per mile is that
A About 17 or 18 inches
Q What is the distance from
the point at the Riverside
Road where it crosses the
Riverside road to the point
at Sutterville just mentioned
A It is about 7000 feet that
is to the road that crosses
from what we call the Sutter-
ville Brewery there to the
River
Q It is at a point near
the Brewery to what is
Called Sutterville ?
A Yes sir it is Called
Sutterville
Q Now taking that point the
last mentioned point near
Sutterville, State whether the
Canal enters into any open
Lake or place there ?
A Directly below this road
at the end of the 7000 feet
there is a small Lake

I suppose half an acre,
quite a deep lake
Q Quite a deep small
lake, it empties into that
A It empties into that or
passes through it on its
way.
Q Then the Canal Continues
from that point on, What
is the next lake or depr-
ession it empties into?
A Well there are two or
three little Lakes
Q Well the principal one
A Well there are two or
three little Lakes, finely
it discharges into a Lake
that is located opposite the
lower end of the Riverside
road I have been accustom
ed to calling it Grandms
Lake I do not know that
there is any proper Name
to it, it is quite a large
Lake
Q About how large a Lake
A Well I suppose it Contains
30 or 40 acres about a

half a mile long.
Q Narrow and long?
A About half a mile long
and an eighth of a mile
wide probably.
Q Well what distance is
it from the point at Sutter-
ville that you just mentioned
to this Grandon Lake so called
A That distance has never
been measured accurately.
The only way I can tell you
that is by the map.
Q Can you tell about the
distance by reference to any
map or do you know without
A I know without referring to
any map at present.
Q State in miles?
A I believe it is about a
mile and half
Mr Hart Where is that.
Mr Collin From Sutterville
to Grandon Lake
A About one and a half miles
Q Now what is the grade of
this Drainage Canal from
Sutterville to Grandon Lake

per Mile
A That Section has a grade of about six inches in a Mile
Q Six inches to the Mile?
A Yes Sir
Q State whether there is any drainage into Grundens Lake from any other source than the Drainage Canal?
A There is a slough that discharges into this Lake coming from the east, it drains I suppose two or three Square Miles I do not Know exactly it is quite a large Stream, it is called Willow Slough.
Q Which end of the Lake did that drain into the upper or lower end?
A The lower end.
Q That is the lower end from here?
A The South end
Q What did you say in regard to that slough as to its discharge, I did not quite hear?

A At times during heavy
Rains there is a good deal
of water discharged through
it
Q It comes from the east
from what Character of
Country ?
A Well Just such Character
of Country as lies to the
east all the way along here.

Q This Plain Country ?
A This Plain Country Und-
erled with bed Rock.

Q Well now does this Canal
Continue from Grandons
Lake on to any other point
And if so State where it
goes on to from Grandons
Lake ?
A It Continues from Grandons
Lake Southerly a distance
of 24 500 feet by measurement
to the head of Beaches Lake
Q What is the grade from Grandons Lake
to Beaches Lake through this 24 500 feet
A Six inches to the Mile. That

Map does not show it right at all especially this Lake here (showing)
Q Does that give it any better (another map shown)
I will depend on your description without the aid of map =
The Witness I think that represents it more correctly
(The witness here refers to map marked Smith Exhibit Number Seven) This shows the line of the drainage Canal just about as it was, the Lakes are located by the government in there Swamp land surveys I presume. This is represented by the blue line that passes through the Lakes and finally discharges into the head of Snodgrass Slough about at that point there, There has been no work done, it is simply an open Slough

Mr. Cadwalader That discharges into the Mokelumne River doesn't it? A- Yes Sir there is some tide there I believe no very great amount.

Mr. Cattin If I understand you after the discharge of the Beach's Lake the City under this drainage improvement has not carried it any further?

A- There has been no work done by the City since I have been City Surveyor beyond Beach's Lake except in the way of surveys.

Q- It has been surveyed further down?

A- Levels have been taken further down that is all.

Q- Down to what point?

A- Down to the head of Snodgrass Slough.

Q- Then the skemes contemplates a connection with Snodgrass Slough?

A- I believe that was the original intention of the Act of the Legislature.

9342

2- What is the present intention of the City ?
A- I can not say that is something that has not been much of anything said about of late, I do not know what the Authorities, the Board of Trustees contemplate in regard to it
2- From Beadles Lake state where the line of this canal next goes, and before asking that I will ask you whether previous to the time that the city took hold of it had there been any connection attempted or any partial connection or any connection between Beadls Lake to points further below?
A- I found upon going down through there that there had been work done that there was earth that had been excavated, all upon the sides of the Canal and of course I know by

Masury that there was work done before.

Q Mr. Hunt Where was that between Beach's Lake and where?

Mr. Mathui And the next Lake below,—what is the next lake below Beach's into which this canal empties.

A. The next lake is Whitcomb Lake.

2. How far below the lower end of Beach's Lake?

A. Well it is from a mile to a mile and a half on the maps.

2. Well about, what is the grade between those two points, to the mile?

A. Well the grade beyond where any work has been done is such that taking the distance approximately, we know it within 2 or 3 miles and the fall, that we find that there is by taking the levels the

grade would be from 2 to 6 inches to the mile to a line drawn to low tide.
2- Four to 6 inches at low tide? A- Yes Sir.
2- Well from Whitcomb Lake into what place does it drain next below?
A- Into what is called Bloom Lake.
2- About how far below Whitcomb Lake is that?
A- That is about a mile and a half or a mile and three quarters.
2- What grade?
A- The same grade 2 to 6 inches to the mile.
2- How much of a lake is Bloom Lake- how long is it?
A- About 3 miles I should judge by the map
2- Well from Bloom Lake into what lake or slough does it next connect?
A- The lower end of Bloom Lake connection is

9345

made with the head of Snodgrass Slough?
2- What is the distance between the lower end of Bloom Lake and Snodgrass Slough?
A- About a mile and a half, I think it is shown that way on the map. I think on the ground it is less I know that I have walked the distance and I do not think it is much over half a mile if it is half a mile.
2- How long a slough is Snodgrass Slough?
A- I could not say.
2- Will about? A- I will have to refer to this map to state that I Referring to the same exhibit, between five and six miles.
2- That slough, Snodgrass slough as I understand it discharges into Old River?
A- It discharges into the Mokelumne River or to some other slough that

I can not state positively I have never been to the locality I believe the maps show that it discharges into the Mokelumne River
Q- Where does the Mokelumne River discharge?
A- The Mokelumne discharges into the San Joaquin.
Q- And the San Joaquin into Suisun Bay?
A- I believe it discharges ultimately into Suisun Bay I think it is called the Sacramento River though- I think it discharges into the Sacramento, I think it is called the Sacramento River yet below the junction of the two rivers- it is very near it.
Q- The San Joaquin empties into Suisun Bay and the Sacramento into Suisun Bay at about the same point I believe
A- Very near the same point if I recollect rightly I am not

at all acquainted with that country down there except by the map.

2- Are all these grades that you have given after you leave Y start in the open drainage canal made with reference to the low water?

A- They are made with the intention of drawing about a straight line — the intention was to make the grade as near as possible a straight line from the outlet below the city that is after you get down to base say from Sutterville, to the low tide at the head of Sacramento Slough.

2- Will I will ask you when the tules are full of water after the Winter rains, the usual annual rains whether there is practically any grade at all?

A- After any particular heavy rains the drainage from the City and from the plains

east of us fills the basin below the City here between the River and the highland and comes up over the tide to our sewer so that there is really no grade, it is simply that the water is crowded up by the head further up.

2- And when this water is high they are not available grades: A- No I suppose not.

2- What means have been taken by the City any within the last year for the purpose of aiding this discharge into this drainage canal or the neighborhood of Y street? A- There has been constructed this last season pumping works at 8th and Y street for the purpose of discharging the drainage from the City during the time of back water similar to that of last Winter at times when the drainage will not discharge itself without backing up

into the City and doing damage.
Q- Near the corner of Yand 8th?
A- Yes Sir.
Q- Will state the character, is that the pump that is established permanently for the purpose of aiding this Canal in the manner described?
A- It is certainly permanent it is calculated to be so.
Q- Is it a steam pump?
A- Yes Sir. A pump run by a steam engine.
Q- Where do they pump the water to? A- It is forced through a pipe under the levee and outside

Q- It is pumped over the N street levee?
A- Not over but under, it is forced through the levee and discharges on the outside

Q- And then goes where into this same drainage

canal.

A- From 8th street it runs to the west along the south-side of N street to outside of the levee to Sixth street where it enters this sewer that leads out into the drainage canal. Of course during high water when the pump is supposed to be running the whole surface of the country will be covered with water and discharge right out into the open water.

Q- Is it for no other uses except to pump the water out during the high water in the Winter, is that what I understand you?

A- That was the primary object, there are other objects that can be obtained I suppose by the use of the pump.

Q. Has it been used for the purpose of taking the outflow of the water down Sixth street and beyond Y?

A. It has only been run about 24 hours since it has been constructed; well, about 48 hours now is all it has been run. It has been run only for the purpose of testing it and seeing that everything is in readiness when it is needed.

Q What effect did that have upon the sewers?

A. It materially increased the velocity in the sewers at the lower end; that is, say, from R street down to V street where that piece of pipe is located, and washed out nearly all the mud that had become lodged in the sewers.

Q Did you measure the outflow of the sewer at Y street recently?

A Yes sir.

Q State the time when you did it?

A. I believe it was commencing at noon of the 21st. of December and ending at noon

on the 22nd. of December.
2 Was that done under your management?
A. Yes sir, it was.
2 Was it done accurately or as accurately as that kind of work can be done usually?
A yes.
2. What was the amount discharged during the 24 hours from December 21st. at 12, noon, to December 22nd at 12 noon?
A. According to my figures I made it 457,704,000 gallons.
Q
2. State the grade of the surface of the ground at Sutters Fort above what was called zero (Ø) upon the 1st street gauge?
A The highest extreme point, at present at, Sutters Fort or on that high ground at that point is levelled, 30 feet 2 inches above the zero (Ø.)
Mr. Hart. That is above low water mark, you mean?
A yes.
Mr. Catlin. What is the grade of J street, its present grade above

the same zero?

A. The high grade where I street has passed will average about 25 feet.

Q. What is the grade of I street above the natural surface?

A. The amount of filling?

Q. Yes. A. It varies some. I suppose there was high and low ground originally.

Q. Take the average?

A. It varies from eight to twelve feet; say an average of about ten feet.

Q. State the elevation of Front street above zero. Is that about the same as I?

A. The elevation of the east side of Front street, from I street south to P street is about 25 feet; sometimes a little more; sometimes a little less. That is what the grade is ~~calculated~~ to be — 25 feet.

Q. What is the elevation of the north levee at the head of Burns' Slough above zero? I mean the top of the levee?

A. Where it crosses Bunn's Slough
2 Where it crosses Bunn's Slough.
A. It's leve is 46 feet above the zero mark.
2 State whether the rise in the levee, from Front street to where it crosses Bunn's Slough, is gradual and uniform?
A. It is a uniform grade, I should say.
2. It is a uniform rising grade?
A. Not exactly uniform. I believe there are one or two slight changes in the grade. But it is practically uniform.
2 Give us the distance, approximately or exactly, ~~below~~ if you can, between the point, where the levee crosses Bunn's Slough, and 31st. street. That is, how far it is from the point crossing 31st street up to the point where the levee crosses Bunn's Slough?
A. About 9000 feet; — a little over 9000; — 9000 and 200 or 300 feet.
2 Taking a cross section from

93 5 5

the corner of O and 7th. streets, from thence west to the Sacramento River on the natural surface, at what point would be the lowest depression?

A. The lowest depression would be at 5th. street or very near 5th.

Q. How much difference would there be at 6th? Would that be about the same?

A. No. Sixth street is about a foot higher.

Q. About what is that depression?— How many feet?

A. About four feet I think below the ground at the river bank. It may be a little more than that. That is as near as I can give it.

Q. Is it not more than four feet?

A. I say it may be a little more. It may be as much as five. I am not very well acquainted with the original ground there. I know about the depression there is in the grade, that has

been established and I think that is about four feet. I am well satisfied that the filling is greater at 5th. street than it is at Front street:- It may be from five to six feet, the depression in the original surface.

2. How is the slope from each of these two sides of this depression? Is it gradual or rough?

A. It is a uniform slope.

Q. What is the fall, say from D street to R street, running north and south, on the natural surface?

A. The fall on the natural surface here is about six inches to a block across the city, north and south. On different streets it varies from four to six inches. That is, nine blocks. That would be about 4½ or five feet.

Q. State the area of surface of the city drainage in the drainage canal at the outlet at Y Street? About how many blocks?

A. ~~About~~ You mean what would

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be the whole area of surface within the city limits that drains into the drainage canal?
Q. Yes. A. There are about 30 blocks east and west, from Front street to 31st. street, and then there is from D street to Y street north and south, except at the corner where the Railroad Shops are located. I would have to figure that to tell you exactly. It wont take very long to estimate it.
2. You say 30 blocks east and west. How much distance to the block?
A. Four hundred feet east and west and 420 north and south.
2. That is a block inclusive of streets and alleys?
A. Of streets and alleys.
2. Just give the total area of these blocks in square feet and then I can make a deduction for the corner you have spoken of, cut off by the Railroad, or you can make the deduction.

afterwards, just giving the total area or square feet of surface.

A. <After figuring.> There would be 111,720,000 square feet of surface after taking out, say 25 blocks that the city would lack of being a square.

Q. Those are the blocks which lie in here covered by Sutter Lake and the Railroad?

A. They would be outside of the square. They would be the portion that are not turned into the city.

Cross-Examination
of
L. S. Bassett

Mr. Hart. You speak of a depression which is gradual between the two rivers running from the American on the one side and the Sherman on the other to a point on O. Street? A. No. The depression that I spoke of is across the City East and West from the river to 7th St. It is from the river a down grade to 5th and then an up grade to 7th and a sort of depression from there

2 You said there was a gradual depression all over the City of about 6 inches. Where is that found?

A It is a gradual slope across the City from North to South of from four to six inches to the block.

2 Is there not also a gradual slope from west to

East? A No, Except this depression from 7th St westerly the City is practically level.
Q As the land originally lay in this City, how far did this slope of about 6 inches extend south?
A To about R St. Below R St. it is less.
Q Less than 6 inches?
A Yes. Although on different streets it varies of course.
Q How far did the grade continue, that is a grade of some kind within your knowledge?
A. There are some of the streets that it would extend clear through to Y. Street.
Q How far down, how far south? It extended clear down to the lake you spoke of did it not? A Yes.
Q As the land was originally before there were any deposits made? A Yes. Take it on 6th Street it did. No! It did not either. That depression you speak of runs sort of

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diagonally

Q. I spoke of a grade running from the north to the south, a fall of the land. Have you and that continues so as to make a water shed running south?

A. Practically only I suppose to R. Street.

Q. Then did it rise again? Did the grade go up from R Street south?

A. It might on some of the streets. On 9th and 10th Street it runs out and near to the Cemetary Hill, of course. 7th Street runs into the lake. 8th Street after it passes R. Street two or three blocks, and gets on rising ground.

Q. Is it not a fact that water placed on the banks or water from the banks of the Sacramento and American River here and turned loose would have taken a general southerly course and have

gone down into the lakes below the City of Sacramento?
A Certainly
Q The natural drainage running that way?
A Certainly
Q And with an average fall of how much to the mile?
A A fall of 5 or 6 feet to the miles.
Q How many miles is it from here to Smodgrass Slough?
A The distance is about 25 miles
Q With a fall of 5 feet to the mile? A Oh no. That only extends across the City limits
Q I want to know what the fall is between here and Smodgrass Slough, or the average fall? A. If you will ask me from some point I will answer.
Q From the City of Sacramento
A. From the high grade or from the low grade, or from the bottom of the outlet

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of our Sewer or what?

Q. From the natural banks of the river. I will put it from Y. Street. From Y St. to Frodgrass Slough?

A. Y Street is not a level street

Q Well, I will take the point where your Sewer is the lowest point on Y. Street where the water would naturally run.

A. If you take the lowest point at Y. Street, there is an available fall probably of about 7 or 8 feet to the water of Frodgrass Slough

Q. In that entire distance?

A In that entire distance.

Q Now what I want to know is the fall of the natural surface?

A There would not be more than 7 or 8 feet fall in the natural surface of the ground

Q How many miles is that?

A About 2 or miles

Q How much comes that be

to the mile? A. If you drew a straight line from that point it would be between 3 and 4 miles to the mile.

Q. That is the natural fall before any debris was deposited there? A. Yes. That is about the natural fall

Mr. Carlin. Q. You has not stated that there was any debris deposited there

Mr. Hart. Do you know how deep the debris has been deposited in the Mokelumne River at the point where that Slough enters it?

A. Divers have been at that point

— " —

Recess until 2 P. M.